Published in
N. J. Smelser & P. B. Baltes (Eds.), Learning and Instruction, Social-Cognitive Perspectives.
International Encyclopedia of the Social & Behavioral Sciences (pp. 8586-8588), 2001
which should be used for any reference to this work

On social factors in learning and instruction

Anne-Nelly Perret Clermont - University of Neuchatel - Switzerland
Felice Carugati - University of Bologna - Italy

Learning and development in the nature-nurture debate

Development and learning were for decades a matter of distinct ways of research and theoretical discussion, with a switch from the primacy of one of the poles, for example from development as a basis for learning, to learning as a cause of development, with some radical positions, as for instance, learning without development. But the development - learning dilemma and the larger nature - nurture debate, even in the more recent forms of genetics and experience (Plomin, 1994), has long hindered theoretical and methodological attention to the communicative social and cultural framing of the learning and testing situations considered. In the last decades, important shifts in the research paradigms under consideration brought forward data that could not be interpreted anymore in terms of social factors as just external variables affecting the learning of bio-psychological individuals from the outside but required the consideration of the critical role played by social interaction in learning and instruction and the social construction of cognition within cultural activities.

This research has been built on a long tradition such as the seminal works of scholars like Baldwin, Piaget, Wallon, Vygotsky, or Luria, and more recently, Bronfenbrenner. However, although it is one of the fundamental tenets of the social and behavioral sciences that human behavior and development is at least in part a creation of social forces, social interaction, and social transmission, it is also true that theory and method do not always coincide in developmental work. Thus, there is a continuing search for the role of the " social-interactive " in developmental theory and research.

One persuasive example is the enrichment and transformation of social-learning theory by cognitive dimensions to get a better understanding of the social and collective foundation of action and thought (e.g., Bandura, 1998). Another example of this continuous struggle for a better match between theory and method is the revisitation of early 20^{th} century social constructivist scholars such as Baldwin or Piaget . A third example is the ongoing mandate of interactionism (Magnusson & Endler, 1977) or the recent stream of " postmodern " efforts (Neimeyer, Neimeyer, Lyddon, & Hoshmand, 1994) at articulating reality as social construction. Finally, the recent debates about collectivism versus individualism (e.g., Cooper & Denner, 1998) deserve mentioning in this context.

On the surface,the fundamental role of social forces and social processes in the evolutionary and ontogenetic origins of behavior and the human mind seems clearly and widely acknowledged. Yet the translation of the intellectual agenda into scientific evidence continues to be incomplete. The non-social person-centered research paradigms seem to persist in the study of cognition even when the fundamental role of context is obvious (see also Greeno, Chi, Clancey, & Elman, 1993, for recent debates on this issue).

Many have tried to achieve a greater match between theory and empirical methods. During the nineties, several stimulating review chapters have appeared that aim at similar goals (e.g., Baltes & Staudinger, 1996; Cranach, Doise & Mugny, 1992; Levine, Resnick, & Higgins, 1993; Light & Butterworth, 1992; Rogoff, 1990).

These shifts in the perspectives on learning have been accompanied by changing views on the nature of psychological development, the interdependancies between cognition, language, socialization, motivation and identity; and also on the nature of knowledge no longer tied to individuals but relative to a community and subject to change (Van der Linden, Erkens, Schmidt & Renshaw, in press). But all these approaches could still gain by devoting more attention to the critical role played by the communication and the construction of meaning in learning and instruction. This could enhances a revisitation of the current understanding of cognitive development, and contribute landmarks to the current educational endeavors that aim at encouraging learning together (and not as isolated individuals) with relevant semiotic mediations on substantive issues.

Gradual shifts of the paradigms : from the individual to the societal

Studies on learning have operated gradual shifts of paradigms, from the over-emphasis of the biopsychological functioning of the individual learner, where failure is necessarily seen as a sign of incompetence, to taking into account other social factors, either in a perspective inspired by Lewin's notion of field, or in a more macro-sociological approach. Notably the latter has called attention to major social problems around discrepancies in learning performances in students in schools according to their social position (socio-economic background, gender, ethnicity), educational methods and their hidden curriculum, the streaming structure of school institutions, etc.; and differences between the same subjects' performances in and out of schools (Nunes, Schliemann & Carraher, 1993). At the psychosocial level, evidence has pointed to field effects on performances: since Orne's pioneering work in 1962, many studies have shown that the assessment of the subjects' competencies is affected by social factors such as the linguistic, motivational, attributional, identity characteristics of the subjects, teachers' expectations, individual and public dimensions of the situation, and the climate of co-operation or competition (for a review: Perret-Clermont 1980, Van der Linden, Erkens, Schmidt & Renshaw, in press). The rather controversial results of these studies have called for a more integrative theoretical framework, articulating the various levels of analysis from the individual to the societal, in order to take into account the ways in which these factors interact, relying upon precise descriptions of the networks of socio-cognitive processes within which subjects think, behave and learn (e.g., in the laboratory, at home, at school, in the street) and observations of the impact these experiences have on individual and collective cognition (for a review: Hinde, Perret-Clermont & Stevenson-Hinde, 1985).

This has led to a new shift from determinism to constructivism, and from product - oriented studies to process-oriented ones. Studies were made on the interdependency between successful formal learning in schools and family socialization, and closer attention was paid to the teacher's role in defining precise expectations and giving adequate feedback to the students, on the one hand, and to the communication modes and patterns elicited in the learning and testing situations on the other hand.

Learning as a socio-cognitive activity in which partners have an essential role

It has been established that interaction, in order to be instructive, doesnot always have to be between a child (or novice) and an adult (or teacher/expert)but can be just as effective if it takes place between equally novice peers, given a certain number of conditions and for certain tasks. (e.g. Allen and Vernon, 1976; Gartner, Kohler & Riessman,1971). But this called for detailed studies of the influence of social interaction on the appropriation of cognitive tools. Some authors for instance have illustrated the effects of the destabilization of the previous subjects' procedures (for example in problem-solving tasks) as destabilization triggers the questioning of and the change in procedures and representations concerning a given task (for instance, reasoning by recurrence, the notions of left and right, hypothetico-deductive reasoning in a fictitious weighting task (for a review see: Gilly, 1989)). The control function takes on various forms: control can be exerted by triggering a verification of a statement or solution proposed by the partner, or by simply agreeing with or reformulating the partner's proposal. There appears also to be an interdependency between the type of problem to be solved, the cognitive functioning of the individual and the socio-cognitive functioning of the dyad.

Recovering the importance of the notion of conflict both in social and in developmental psychology, Perret-Clermont (1980) and Doise and Mugny (1981; see also Carugati & Gilly, 1993 for an overview) introduced the notion of socio-cognitive conflict which stresses the effect of the simultaneous confrontation of different individual perspectives or points of view during social interaction that necessitates and gives rise to their integration within a new cognitive organization. These experiments have explored under which conditions such confrontations with other points of view induce learning.

A further claim is made in studies on social marking that show that the social regulations that govern a given interaction constitute an important factor for the building of a new cognitive coordination because they bring a symbolic order that conveys meaning to the tasks (see for a review: Nicolet, 1995; Carugati 1999).

Learning as participation in social discourse

The problems of the meaning of a cognitive task and the expectations activated in the subjects questioned both in experimental and in a more concrete school situations are well- known in developmental psychology. Rose & Blank's studies (1974) on the role of double questioning in Piagetian tasks, Donaldson's (1978) study of tasks which " make human sense " for young children, Light, Buckingham & Robbins' (1979) and Siegal's (1991) contributions about performance tasks as interactional settings are only several examples of well-established studies that have had an important influence on the study of communication in learning and testing situations bringing forth evidence for the inextricability of meaning and expectations in every cognitive activity. A series of studies whose common ground is often the notion of " contract " (inspired by Rommetveit's communication contract) have renewed the general claim (Schubauer-Leoni, 1986; Elbers,1986; Grossen, 1988; Säljö & Wyndhamn, 1987) that experimental and pedagogical situations are interactional settings governed by specific contracts made up of explicit and implicit rules on the basis of which social actors adjust their behavior.

Failures in learning are reappraised as failures to communicate and to convey meaning. Attention is then paid to the interactional patterns between teachers and students (Cazden, 1988) and to the nature of the regulations that permit interlocutors to establish joint attention, a common object of discourse and maintain this common ground and mutuality (see Grossen & Py, 1997). Learning is

understood as participation in a social process in which meaning takes form (Bruner 1990), scaffolded by language and culture. And on the instructional side authors have explored the role of discourse in teaching (see e.g.: Lampert (1989), Mercer (1993) on exploratory talk, Pontecorvo (1993) on argumentation).

Studies of learning have encouraged a reconsideration of the idea of development.

Gradually learning is appearing as the socio-cultural experience of a person experiencing his or her agency within a history of social encounters, joint activity or post hoc individual or social meta-reflection. The basic research paradigm cannot anymore take the simple form of pretest-treatment-posttest as this chain of events itself gets its meaning partly from the setting and social context in which it is embedded: the pretest is already an interaction and in some ways a treatment from which the subject will draw information and experience on how to behave at the next step. What is it then that develops or that is learned along the different moments of a person's encounters with his or her social, semiotic and physical environment? The metaphors of children's developmental growth have usually been that of ascending lines ranging from straight lines and scales to curves and spirals, having all in common some vector towards fixed endpoints with a general flavor of biological or cultural absolutes (such as formal reasoning, autonomous thinking, generalized and transferable competencies, etc.). The cognitive competency of the adult (teacher, mother, etc.) was usually taken for granted.

When the learner is considered as being the partner of joint activities (Rubtsov, 1989) and conversations in which he or she has stakes and continuously unravels and renegotiates rules, norms and expectations, in changing social environments, then the form of development loses its determinism. New metaphors have been emerging to designate this socio-cognitive activity in terms of gradual participation in socially shared cognition, moves from peripheral participation to more central social positions in communities of practice, apprenticeship and guided participation (Rogoff 1990; Chaiklin & Lave, 1996); Resnick, Levine, & Teasley, 1991); distributed cognition (Salomon, 1993); the socialization to discourse in activity settings (Engeström & Middleton, 1996), It is becoming clearer that not only individual novices and tutors learn, and learn to become social learners, but also social entities (Salomon & Perkins, 1998).

Hence the shifts in the research paradigms have brought about very different understandings: learning as nurturing a stage (or step by step) process of individual development; or learning as apprenticeship via guided participation into the skills, discourses and competencies of given communities of practices; or learning as co-construction and negotiation of activities, discourses, understandings and identities.

References

Baltes,P.B., Staudinger,U.M.(Eds.) (1996) Interactive minds. Cambridge, Cambridge University Press.

Bandura, A. (1998). Personal and collective efficacy in human adaptation and change. In J. G. Adair & D. Belanger (Eds.), Advances in psychological science, vol. 1: Social, personal, and cultural aspects (pp. 51-71). Hove, UK: Psychology Press.

Bruner, J.S. (1990) Acts of meaning. Cambridge, Mass.: Harvard University Press.

Butterworth,G. (1992). Context and cognition in models of cognitive growth. In P.Light, & G. Butterworth (Eds.), Context and cognition. Hempel Hempstead: Harvester Weatsheaf.

Carugati, F. (1999) From Piaget and Vygotsky to learning activities: A long journey and an inescapable issue. In M. Hedergaard, J. Lompscher (Eds.) Learning activity and development. Aarhus: Aarhus University Press, pp. 211-232.

Carugati, F. (in press) Learning and thinking in adolescence and youth: how to inhabit news provinces of meaning? In A. N. Perret-Clermont, C. Pontecorvo, L. Resnick, T. Zittoun, & B. Burge (Eds.) Youth, Learning and Society.Cambridge: Cambrige University Press.

Carugati, F., Gilly,.M. (1993). The multiple sides of the same tool: cognitive development as a matter of social construction of meaning. In F.Carugati e M.Gilly (Eds.) Everyday life, social meanings and the social construction of cognitive functioning. European Journal of Psychology of Education, special issue, VIII,4, 345 - 354.

Cazden,C. (1988). Classroom discourse. Cambridge: Cambridge University Press.

Chaiklin, S., Lave,J. (Eds.) (1996). Understanding practice: Perspectives on activity and context. Cambridge: Cambridge University Press.

Cooper, C. R., & Denner, J. (1998). Theories linking culture and psychology: Universal and community-specific processes. Annual Review of Psychology, 49, 559-584.

Cranach, M. v., Doise, W., & Mugny, G. (Eds.). (1992). Social representations and the social bases of knowledge. Lewiston, NY: Hogrefe & Huber.

Doise,W. & Mugny,G. (1981). Le développement social de l'intelligence. (Engl. transl. The social development of intellect. Oxford: Pergamon Press, 1984).

Donaldson,M. (1978). Children's Minds. Glasgow: Fontana.

Elbers,E. (1986). Interaction and instruction in the conservation experiment. European Journal of Psychology of Education, 1, 1, 77-99.

Engeström,Y., Middleton,D. (1996). Cognition and communication at work. Cambridge: Cambridge University Press.

Gilly,M. (1989) The psycho-social mechanisms of cognitive constructions. Experimental research and teaching perspectives. International Journal of Educational Research, 13, 6, 607 - 621.

Greeno, J. G., Chi, M. T. H., Clancey, W. J., & Elman, J. (1993). Situated action. Cognitive Science, 17.

Grossen, M. & Py, B. (1997) Pratiques sociales et médiations symboliques, Bern & New-York: Peter Lang.

Grossen, M., & Perret-Clermont, A. N. (1994). Psychosocial perspective on cognitive development : construction of adult-child intersubjectivity in logic tasks. In W. D. Graaf & R. Maier (Eds.), Sociogenesis reexamined (pp. 243-260). New York: Springer Verlag.

Grossen,M. (1988). La construction sociale de l'intersubjectivité, entre adulte et enfant en situation de test. Cousset (Fribourg, Switzerland): DelVal & Neuchâtel (Switzerland): Dossiers de psychologie de l'Université.

Hinde, R.A., Perret-Clermont, A.-N., & Stevenson-Hinde, J. (Eds) (1985). Social relationship and cognitive development. Oxford: Clarendon Press.

Lampert, M. (1989). Choosing and using mathematical tools in classroom discourse. *Advances in Research on Teaching, I*, 223-264.

Levine, J. M., Resnick, L. B., & Higgins, E. T. (1993). Social foundations of cognition. Annual Review of Psychology, 44, 585-612.

Light, P., & Butterworth, G. (Eds.). (1992). Context and cognition: Ways of learning and knowing. Herfordshire, UK: Harvester Wheatsheaf.

Light,P., Perret Clermont, A.-N. (1989) Social factors in learning and testing. In A. Gellatly, D. Rogers, J.A. Sloboda (Eds.) Cognition and social worlds. Oxford: Clarendon Press, pp. 99 – 112.

Magnusson, D., & Endler, N. S. (Eds.). (1977). Personality at the crossroads: Current issues in interactional psychology. Hillsdale, NJ: Erlbaum.

Neimeyer, R. A., Neimeyer, G. J., Lyddon, W. J., & Hoshmand, L. T. (1994). Review: The reality of social construction. Contemporary Psychology, 39, 459-463.

Nicolet, M. (1995). Dynamiques relationnelles et développement cognitif. Lausanne & Paris: Delachaux et Niestlé.

Nunes,T., Schliemann,A.L., Carraher,D.W. (1993). Street mathematics and school mathematics. Cambridge: Cambridge University Press.

Orne, M.T. (1962). On the social psychology of ten psychological experiments: With particular reference to demand characteristics and their implications. American Psychologist, 17, 776-783.

Perret-Clermont, A.-N. (1980). Social interaction and cognitive development in children. New York: Academic Press.

Plomin, R. (1994) Genetics and experience. London: Sage.

Pontecorvo, C. (1993). Discourse and shared reasoning. Cognition and Instruction, 11, 3& 4 (special issue).

Resnick, L. B., Levine, J. M., & Teasley, S. D. (Eds.). (1991). Perspectives on socially shared cognition. Washington DC: American Psychological Association.

Rogoff, B. (1990). Apprenticeship in thinking: Cognitive development in social context. New York: Oxford University Press.

Rose, A., & Blank, M. (1974). The potency of context in children's cognition. An illustration through conservation. Child Development, 45, 499-502.

Rubtsov, V. V. (1989). Organization of joint actions as a factor of child psychological development. International Journal of Education Reserch, 13(6), 623-636.

Saljo, R., & Wyndhamn, J. (1987). The formal setting as context for cognitive activities. An empirical study of arithmetic operations under conflicting premisses for communication. European Journal of Psychology of Education, II(3), 233-245.

Säljö, R. & Wyndhamn, J. (1996). Solving everyday problems in the formal setting: An empirical study of the school as context for thought. In S. Chaiklin, J. Lave (Eds.) Understanding practice: Perspectives on activity and context. Cambridge: Cambridge University Press.

Salomon, G. (Ed.). (1993). Distributed cognitions.Cambridge:Cambridge University Press.

Salomon, G., & Perkins, D. N. (1998). Individual and social aspects of learning. In Review of research in Education (pp. 1-24). American Psychological Association.

Schubauer-Leoni, M.L. (1986). Le contrat didactique: Un cadre interprétatif pour comprendre les savoirs manifestés par les élèves en mathématiques. European Journal of Psychology of Education, 1, 2, 139-153.

Siegal, M. (1991) Knowing children: Experiments in conversation and cognition. Hillsdale: Erlbaum.

Slavin, R. (1990). Cooperative learning: Theory, research and practice. London: Allyn and Bacon.

Van Der Linden, J., Erkens, G., Schmidt, H., & Duffy, T. (in press). Collaborative learning. In P. R. J. Simons & J. Van Der Linden (Eds.), New Learning. Dordrecht: Kluwer Academic Publishers.

Weiner, B., Nierrenberg, R., Goldstein, M. (1976). Social learning (locus of control) versus attributional (causal stability) interpretation of expectancy of success. Journal of Personality, 52-68.

Zajonc, R. 1965 Social facilitation, Sciences, 149, 269-274.