

The contribution of Vygotsky's theory to our understanding of the relation between the social world and cognitive development.

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Abstract.

Discussion is given on the contribution of Vygotsky's ideas to the understanding of the relation between the social world and cognitive development. Particular attention is given to the significance of culture, the role of language, and the student's relationship with (and development within) this social world. In doing so, some similarities and contrasts between other learning theorists, specifically Piaget, are briefly discussed. Vygotsky's views of the integrated and dynamic social-nature of learning is described, and the notion of a zone of proximal development, which utilises such ideas, introduced. Vygotsky's ideas on cognitive development are shown to lead to student-centred and a co-constructivist basis of learning, in which the student potential within the social context is accommodated.

Introduction.

The relationship between the social world and cognitive development has been considered by several investigators, such as Piaget (1959), Vygotsky (1978), Bandura (1977), Rogoff (1990) and Wood (1998). A commonality of the various theories is that student learning is not viewed as a simple process of information transfer from a source (teacher, parent, computer), but often involves an active social interaction in which, for example, a student *constructs* knowledge through discovery and experiment (Piaget), learns through imitation or observation (Bandura), or relies upon teacher support which is congruent with the student's immediate (proximal) potential for learning (Vygotsky). The work of Vygotsky gives particular attention to the inter-relationships between macro-social (i.e. cultural-historical) and micro-social (i.e. interpersonal) influences on cognitive development, and thus social influences on learning in a broad sense. External social forces are viewed as important in the learner's development, in which the learner is considered an *apprentice* (see, also, Rogoff (1990)) requiring the guidance, facilitation and support of teachers. This view is often contrasted with that of Piaget's theory, in which the main forces driving cognitive development of a student are seen as within the individual (i.e. the student as a *scientist*), constrained to some extent by developmental stages (see, for example, the discussions of Lefrancois (1999)).

In the following sections, attention will be given to the ideas of Vygotsky on the relationship between the social world and cognitive development. In particular, the influences of culture, history and language on development will be considered, and a proposed mechanism of cognitive development through notions of student potential described. The specific implications of these ideas for educators will then be considered.

Cognitive Development and the Social World.

As indicated above, the *social world* as defined by Vygotsky considers not only the interpersonal interactions between, say, a student and teacher, or student and peer, but also the broader socio-cultural and historical influences on learning and the learning environment. The underlying themes of Vygotsky's theory on cognitive development have thus often been summarised as: (i) the significance of culture, (ii) the role of a principal proponent of culture: language, and (iii) the student's relationship with (and development within) this social (cultural) world. In this context, culture is viewed as socially accepted behaviours, attitudes and beliefs, and is constructed through human societal products such as institutions, symbol systems and *tools* such as language. Culture in this sense, is a dynamic outcome of historical events and developments, and thus products of human development. However, as emphasised by Vygotsky, at any particular historical time, culture itself will influence human mental functioning and behaviour, and thus a complex (integrated) relationship between the cultural environment and personal development. In other words, humans are not only producing culture, but are also products of culture themselves.

The cultural influences on childhood development can be exemplified through the *elementary* and *higher mental* notions of Vygotsky. The former describes innate functions or characteristics of a young child such as responding to a mother's voice and crying for a need. In the course of development, perhaps through operant conditioning, imitation, perception or some limited cognitive evaluation, elementary functions are gradually transformed into higher mental functions such as problem solving, logic, and propositional and hypothetical thinking. Vygotsky believed that this transformation is strongly influenced by culture. For example, culture results in language and other symbolism which perhaps define non-primitive consciousness (see below), and create the social processes and pressures (motives) for adopting the patterns of behaviour and attitudes which are characteristic of that culture.

Vygotsky believed that language makes thought possible and is thus the basis of consciousness. Without language his view was that human development could not exceed that of primitive sense and perception functions, characteristic of lower forms of mammalian life. Language was also seen as the tool of culture which enables social interaction, and thus the direction of behaviour and attitudes, and indeed the propagation and development of culture itself. The specific and early relationship of language and cognition can be identified through three key stages in the development of speech: social, egocentric and inner speech (see, for example, Vygotsky (1986)). *Social* or external speech dominates the first stage of language development, and is a means by which young children (typically up to the age of 3) express emotions or simple thoughts. The speech is principally used for control of behaviour of others, but also acts as a means of conveying early social influences such as parental tolerances of behaviour. Such influences inevitably lead to the restructuring of thoughts, and thus cognition. *Egocentric* speech occurs between the ages of 3 and 7 and describes an intermediate stage of language development between external speech and inner thoughts (see below). In this stage, the child will often talk to him or herself in an effort to control their own behaviour or justify actions or approaches to a task. With maturity, egocentric speech becomes inner speech (self-talk), which has also been referred to as the *stream of consciousness* by James (1890). Vygotsky believed that inner speech enables individuals to direct and organise thought, and thus an important proponent of higher mental functioning. Hence, the set of arbitrary and conventional symbols which are used to convey meaning, but which are culturally determined in form and interpretation, become a part of the individual's cognitive being.

Closely related to the formation of inner speech is the concept of *internalisation*. This involves the internal acceptance (perhaps with individual modification or interpretation) of social (external) values, beliefs, attitudes or standards, as one's own. In this sense, the psychological make-up of the individual is altered through internalisation, and provides a dynamic mechanism by which the inter-social becomes the intra-social. However, such a mental *adoption* processes should not be confused with processes such as *introjection* or *socialisation*. The former describes *internalisation* in which there is little active participation by the individual; c.f. operant learning, and indeed some forms of hypnosis. In contrast, socialisation describes a pseudo-internalisation process in which apparent beliefs arise from a need to conform to society rather than any actual commitment. Internalisation as viewed by Vygotsky therefore, represents a genuine, participative and constructed process, but nevertheless determined by socio-cultural influences. As indicated above, the outcome of internalisation is that inter-personal or personal-cultural influences, become transformed into intrapersonal characteristics. Thus, every function in the child's cognitive development, such as attention, logic or concept formation, appears twice: first on the social level and then on the individual level (Vygotsky (1978)).

An important implication of the above ideas is that there is much opportunity through the school system to influence the cognitive development of children. For example, through language, the presentation and interpretation of history and current affairs, and the attitudes, beliefs and values of teachers (or *significant others*), the thought patterns and beliefs of students may be shaped. Unlike Piaget, who believed that children construct their own ideas of the world, Vygotsky's ideas suggest that student-teacher and student-peer relationships are of prime importance of generating and facilitating new ideas, perspectives and cognitive strategies. Furthermore, the student *apprentice* can be seen to be active within their learning environments, attempting to construct understanding where possible, and possibly contribute to or affirm with the adopted culture. In turn, this aspect of human development inevitably has influence on the environment itself, and thus a *dialectic* process in which learning and development is affected by the social world, and the social world changed through learning and development (see, for example, Tudge and Winterhoff (1993)). In a similar way, Vygotsky has argued

that natural (i.e. biological) and cultural development coincide and merge to form a dynamic and integrated socio-biological influence on personality (Vygotsky (1986)).

A second important implication of Vygotsky's views is that rather than deriving explanations of a student's psychological activity (e.g. intelligence and motivation) from the student's characteristics, attention should be given to student behaviour and performance when engaged in a social situation. Vygotsky in specific postulated the notion of a zone of proximal development (ZPD) which defines the difference between the child's independent learning accomplishments, and accomplishments under the guidance of a person who is more competent at the specific task at hand. Vygotsky particularly viewed adults, rather than peers, as key in this relationship, perhaps because adults are more likely to be truly competent in the task, and thus less likely to cause regression rather than progression in the collaboration (Tudge and Winterhoff (1993)). The maximisation of potential was then viewed as a social process, which challenges the traditional notions of intelligence testing with psychometric tests. For example, emphasis is given to the potential of the student and its social contextualisation, rather than current cognitive abilities measured independently of a social context. However, this notion of potential does not necessarily imply an intelligence level, since the ZPD is a dynamic assessment which may be complicated through the various student-specific influences of the social learning environment. Past experiences (prior knowledge), personality attributes, locus of control, and self-esteem for example, may all have possible influences on the efficacy of learning through the social interaction. Likewise, as a further complexity, the ZPD is not a well-defined space, but created in the course of the social interaction (Tudge and Winterhoff (1993)). Nevertheless, the notion of the ZPD gives importance to the student-centred basis of education, and suggests that the individual progression towards an overall learning outcome will be dictated by the guided and subjective accomplishments of intermediate (proximal) outcomes.

Educational Implications.

Although the social influences on cognitive development have been considered by other researchers, such as Piaget and Bandura, Vygotsky emphasised that individual development is inherently integrated with cultural, historical and inter-personal factors. Furthermore, Vygotsky viewed the individual in the social context as the *unit of analysis* in development, rather than the sole individual. In other words, whilst the internalisation of thoughts, attitudes, and beliefs have been widely accepted to be socially influenced, further higher mental development is postulated by Vygotsky to be inseparably dependent upon social interactions, and indeed new understanding is not necessarily viewed as an external feature to be adopted by the student, but something which is created in the process of the social (teaching) interactions (Tudge and Winterhoff (1993)). Some general implications of Vygotsky's ideas on the social influences on cognitive development have been mentioned above, and can be summarised as:

- the central role of the teacher-student (dyad) relationship in learning
- the inherent cultural and immediate-social influences upon the students attitudes and beliefs towards, for example, learning, schooling, and the education philosophy
- the importance and power of language as a primary tool for the transference of socio-cultural influences upon the child
- the benefits of student-centred teaching, whereby the student can efficiently progress within their potential towards a learning outcome; i.e. constructing knowledge through social interaction (or *co-constructivism* (see Tudge and Winterhoff (1993))

Further specific educational implications of the above points arise when considering practical teaching within schools. For example, given a child with particular personality traits and temperament, how should a teacher instigate a teaching objective which is congruent with Vygotskian ideas? The ZPD describes what a student can accomplish with the help of competent support, therefore it describes the actual task that can be effectively supported by the teacher. Although this may seem a rather circular argument, the implication here is that teachers need to continuously evaluate how effectively a student is progressing in a learning activity and respond accordingly with modified tasks or intermediary learning objectives. In other words, students should be given frequent opportunities to express understanding, and learning tasks fine-tuned by the teacher to address individual capabilities. Such teacher support, which is graduated and task-apportioned based on student needs, has been commonly

referred to as *scaffolding*, which symbolises strong initial teacher support which is gradually reduced as the student approaches the desired learning outcome. In specific, scaffolding may range from very detailed and explicit tuition, such as the explanation of procedures and demonstrations, to the facilitation or organisation of activities for student self-tuition. Scaffolding has also been interpreted as a mechanism by which sequential ZPD's are used to achieve a learning outcome beyond a child's immediate (starting) potential, and thus the specific learning activities change as the student competence towards the ultimate task grows (see, for example, Biggs and Moore (1993)). The notion of ZPD also suggests that effective teaching should not only be within the proximate potential of the individual, but should perhaps be at the upper-level of the ZPD so as to maintain the student interest in the activity.

But how are the above teaching implications of ZPD different from what experienced teachers naturally do? As stated earlier, the social interaction aspect is a key emphasis in the learning process, and therefore the student needs to be active in the learning interaction, and in *collaboration* with the teacher. Where teaching logistics dictate large classes, small group work should be encouraged whereby peer-support and improved teacher interaction can be maintained. However, as mentioned earlier, overt reliance on peer-support could cause regression in some cases, and requires careful evaluation and support by the teacher. Furthermore, in an educational context, a teacher is likely to prove the best role model, i.e. the best conveyer of culturally esteemed factors pertaining to education; see also the discussions of Biggs and Moore (1993) on *modelling* in learning.

The use of language related activities in the school environment are also indicated to be of importance to cognitive development. For example, the development of communication skills may influence the clarity and breadth of inner speech, and thus thought patterns. However, care is needed in the degree of literal interpretation of such influences, which may incorrectly suggest, for example, that students with difficulties in expressing themselves, or grasping subtle meanings in language, are necessarily poor in cognitive ability. Furthermore, certain abilities such as bodily-kinaesthetic and musical skills, may not necessarily be best represented through language-based thought. However, at an early school age, the development of language is likely to be an enabling tool towards other educational abilities, which in our current cultural setting have a cognitive bias.

Finally, an interesting issue which arises through consideration of Vygotskian views is the specific role and advantages of computer-based learning. Here, in one sense, social interaction is removed, but in another, may be replaced by an interactive and responding interface, which could perhaps evaluate and respond to the users ZPD. Such sophisticated computation would inevitably rely on expert-systems type technologies, such that there is an *intelligent* (e.g. humanly adaptive like) response to user queries and misunderstandings. The relatively unsophisticated nature of many current educational software, even those which are stated to be interactive, may explain the current mixed results of such software.

Conclusions.

The influence of the social world on cognitive development has been considered through the views of Vygotsky. The dynamic relationships between culture, history, interpersonal interactions and psychological development have been described, and the important role of language as a common and conducting medium discussed. One specific educational application of such ideas is through the ZPD, which emphasises the importance of the social aspect of learning, and particularly the student-centred and co-constructivist basis of learning in which the individual's potential within the social context is addressed. Such ideas have had impact on the school system by challenging teacher-directed (as opposed to student-centred) learning programmes, and perhaps emphasise the care needed in, for example, computer-based and distance learning teaching initiatives.

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