

## **Seeking connections between different perspectives on teacher education: in support of a science of the Teaching Profession**

---

### ***Abstract***

*This paper seeks to address specifically the relation between educational psychology and didactics and the role of didactics in teacher education. With regard to the latter it seeks to explore the role of “Fachdidaktik” (Subject Didactics) in teacher education with specific reference to mathematics education from a UK (England) perspective. The emphasis on the social and cultural aspects of education that is apparent in “Didaktik” mirrors current debates in mathematics education that are discussed in the paper. Close parallels are seen to exist between “Didaktik” and Vygotskian cultural psychology and the related fields of activity theory and social practice theory. These perspectives are outlined and the parallels with “Didaktik” are discussed. Subsequently some reflections are offered on the potential nature of “Fachdidaktik” as it might relate to mathematics education. Finally reflections are offered on recent developments in England and Wales in response to some of the issues raised in the paper.*

### **Introduction**

In seeking to address the relation between educational psychology and Didaktik (didactics) it seems necessary to attempt firstly to clarify terms as far as possible. As Kansanen (1995) points out in relation to the term “Curriculum”, this is “strongly culture-bound which is why comparison of meaning across linguistic boundaries is fraught with a variety of difficulties”. The same difficulties apply to the term “Didaktik”. However beginning from the direction given by Seel (1999) that Didaktik “may be conceived as the science whose subject is the planned (institutionalised and organised) support for learning to acquire ‘Bildung’”, the need arises to address the meaning of Bildung and also to reflect on the term “science”. Hopmann and Kuenzli (1992) are quoted in Kansanen (1995) as suggesting the term “erudition” as an appropriate translation of “Bildung”. The Oxford Thesaurus (Urdang, 1991) offers a range of terms that include the following: culture, education, knowledge, learning, scholarship and wisdom. Similarly “erudite” has the following terms listed: academic, educated, intelligent, knowledgeable, learned, literary, philosophical, scholarly and wise. In relation to the term “science” this is defined in the Collins Cobuild English Language Dictionary (Sinclair, 1987) as “the study of the nature and behaviour of natural things and the knowledge we obtain about them through observation and experiments”. Psychology, sociology and anthropology are suggested as examples of a particular branch of science involving “the study of some aspect of human behaviour” i.e. a social science in contrast to a natural science. This leads to my interpretation of Didaktik as a social science whose subject is the planned support for learning to acquire “Bildung”. In turn, my interpretation of “Bildung” is of a state of being which is characterised by a cluster of attributes which can be described by terms such as: academic, educated, intelligent, knowledgeable, learned, literary, philosophical, scholarly and wise.

An immediate observation is of the emphasis that is placed on the social and cultural aspects of education by adopting such a starting point. This emphasis is best summarised with reference to the “anthropological basics and foundations in educational sciences (‘Erziehungswissenschaften’)”:

*Human beings are born into a culture, a cultural environment, including a social system. Human personality is developing and shaping in a lifelong process. This development encompasses physical learning processes in interaction (maturation and decline) as well as psychical learning processes in interaction with other human beings and in dealing with cultural phenomena such as objects, institutions, ideas, sciences etc. The acquisition of and the dealing with cultural objects may be conceived as a major part of “Bildung” as a process, which represents a cluster of learning processes.* (Seel, 1999)

This emphasis on the social and cultural aspects mirrors current debates in mathematics education and is the focus of discussion in the following section of this paper. A second and related observation is of the close parallels between “Didaktik” and the cultural psychology of Vygotsky (1962) and related fields of activity theory e.g. (Mellin-Olsen, 1987) and social practice theory e.g. (Lave and Wenger, 1991). These parallels are considered in a subsequent section of the paper.

### **Current debates in mathematics education – the tension between social and individualistic perspectives**

In tracing the development of educational research traditions Kansanen (1995, p.106) highlights the way in which the American and German traditions diverged from around the end of the 19<sup>th</sup> century. He points out that the psychology of education “took its (Didaktik’s) place as a discipline of the science of education in the US” and that psychology of education “still has a strict hold” (p.110) on contemporary thinking about teaching and learning in the US. I would argue that this has been the case also in the UK. Evidence of this phenomenon can be seen through the way in which the International Group for the Psychology of Mathematics Education (PME) has become synonymous with being the major international forum for research in mathematics education. A further dimension to this phenomenon in the UK that has been written about by, amongst others, Jones and Mercer (1993) is the extent to which related theories of learning have been dominated by individualistic perspectives i.e. behaviourism and constructivism in the tradition of Piaget. Constructivism itself has taken on a variety of meanings with “radical constructivism” (von Glaserfeld, 1987) becoming a very significant influence in mathematics education during the 1980s in particular. More recently there has been an emphasis on the notion of “social constructivism” although Lerman (1996) argues that this position is incoherent. He highlights the way in which the programs of Vygotsky and Piaget had “fundamentally different orientations” with a Vygotskian perspective placing the social life as primary and a Piagetian view placing the individual as primary. The major difficulty for radical constructivism is seen to be in offering an adequate explanation of intersubjectivity. He quotes Cobb, Wood and Yackel (1991) as stating the problem clearly. They argue that constructivism “at least as it has applied to mathematics education, has focused almost exclusively on the processes by which individual students actively construct their own mathematical realities” and that “far less attention has been given to the interpersonal or social aspects of mathematics learning and teaching”.

A rather stronger critique is that offered by Michael Apple (1995):

*Most discussions of the content and organisation of curricula and teaching in areas such as mathematics have been strikingly internalistic. Or where they do turn to ‘external’ sources other than the discipline of mathematics itself they travel but a short distance – to psychology ... though it has brought some gains ... it has profoundly evacuated critical social, political and economic*

*considerations ... In the process of individualising its view of students, it has lost any serious sense of social structures and the race, gender and class relations that form those individuals.*

### **Cultural psychology, activity theory and social practice theory**

There are a number of basic assumptions underpinning the cultural psychology of Vygotsky. A primary assumption is that socio-cultural factors are seen as essential in human development. As individuals we are seen to be constituted by our social, historical and cultural experience. The social context is not seen as causative (e.g. of disequilibrium, accommodation etc in Piagetian terms) but rather as constitutive. Intellectual development is seen in terms of: meaning making, memory, attention, thinking, perception and consciousness that evolves from the interpersonal to the intrapersonal. The process of development itself is conceived of as “a complex, dialectical process characterised by a multifaceted, periodic timetable ... by complex mixing of external and internal factors, and by the process of adaptation and surmounting of difficulties” (Vygotsky, 1981).

The social dimension is seen to be primary in both time and fact and the individual dimension is derivative and secondary. Writing from such a perspective, Lerman (1996) highlights the way that language provides the tools for thought, and carries the cultural inheritance of the communities (ethnic, gender, class, etc) in which the individual grows up. Consequently language is not seen as giving structure to the already conscious cognising mind but, on the contrary, the mind is seen to be constituted in discursive practices. He offers the following quotation from Kozulin:

*It is incorrect to consider language as correlative of thought; language is a correlative of consciousness. The mode of language correlative to consciousness is meanings. The work of consciousness with meanings leads to the generation of sense, and in the process consciousness acquires a sensible (meaningful) structure. To study human consciousness means to study this sensible structure, and verbal meaning is the methodological unit of this study. Such a study can be carried out at the abstractive as well as the concrete level. At the level of abstract psychology we can study general rules of signification; at the concrete level we should be concerned with the specific “sense generating” activity that changes the consciousness of a person.*

(Kozulin, 1990, p.190)

Vygotsky highlighted the dialectical nature of thought and language by proposing that these have separate roots. Speech is seen to evolve out of gestures developed within the context of communication and social interaction whilst thought (especially logical thought) evolves from the child’s activity. It is further proposed that speech can be considered to have two particular forms – egocentric and communicative respectively. The function of communicative speech, as implied in its description, is for the purpose of communication with others. On the other hand, the function of egocentric speech is as an instrument of thought itself i.e. a psychological tool. This leads to Vygotsky’s notion of *internalisation*, by which the means of social interaction, especially speech, are taken over by the learner and internalised. Development proceeds when interpsychological regulation is transformed into intrapsychological regulation.

The mediational role of cultural and psychological tools reflects the emphasis of Marxist philosophy on the central role of labour in cultural development. This stresses the transformation of objects using tools in this process. The notion of the psychological tool was first introduced by Vygotsky as an analogy with the material tool e.g. a chisel, which serves as a mediator between the human hand and the object upon which the tool acts. For example the computer can be viewed as a cultural tool which is itself transformed into a psychological tool by means of social interaction. The idea of the mediational role of tools is extended to psychological tools such as sign and symbol systems e.g. language, writing, number systems (semiotics).

Activity theory has its roots in Vygotskian cultural psychology. Crawford (1996) highlights how activity denotes personal (or group) involvement, intent and commitment that is not reflected in the usual meanings of the word in English. She draws attention to the fact that Vygotsky wrote about activity in general terms to describe the personal and voluntary engagement of people in context – the ways in which they subjectively perceive their needs and the possibilities of a situation and choose actions to reach personally meaningful goals. In building upon Vygotsky's work, Leont'ev, Davydov and others made clear distinctions between conscious actions and relatively unconscious and automated operations. Operations are seen as habits and automated procedures that are carried without conscious intellectual effort. So that *activity* corresponds to a motive, *action* corresponds to a goal and *operation* depends upon the conditions. Mellin-Olsen (1987) highlights the dialectical nature of activity theory and also acknowledges the need to recognise that learning does not take place solely in the context of the classroom:

*We shall also study learning outside it, and we shall see how inside-classroom activities relate to outside activities. The dialectics here is located in the part-whole relationship: the classroom activities within learning activities as a totality which includes classroom learning.*

Also consistent with this perspective are the insights offered by Lave and Wenger's (1991) social practice theory further illustrated in Lave (1988 and 1996). This work offers a view of learning as an aspect of participation in communities of practice, which is at first 'legitimately peripheral' in relation to any new practice but that increases gradually in engagement and complexity. Learning is located in the processes of co-participation, as opposed to within the heads of individuals. The learner acquires the skill to perform by actually engaging in the process, under the conditions of *legitimate peripheral participation* (LPP), to a limited degree and with limited responsibility. Those participating in the community are seen as learners and learning, as such, is distributed among co-participants and is not seen as a one-person act. With regard to understanding, this is not seen to arise out of the mental operations of a subject on objective structures, rather it is located in the increased access of learners to participating roles in expert performances. Learning can be a feature of various practices and is not seen to be limited to examples of training and apprenticeship. For example, the production of language can be seen as a social and cultural practice. Lave and Wenger's notion of LPP can be seen as a way of engaging and as an interactive process in which the apprentice engages by simultaneously performing in several roles. Learning is seen as a way of being in the social world rather than as simply a way of coming to know about it. Learners are actively engaged not only in the learning contexts but also in the broader social world and learning presupposes engagement without which no learning will occur i.e. *activity* corresponding to a motive as being an underpinning requirement for such a view of learning.

Lerman (1997) argues for the relevance of such a theoretical perspective, and of activity theory in particular, to the development of teachers themselves in (mathematics) teacher education. He outlines three important factors in support of this view. The first is that it offers a 'coherent single framework for learning throughout life' that applies from childhood through to adulthood. Secondly 'it attempts to integrate affect and cognition in focusing on meaning as its unit of analysis' and thirdly 'it offers a method of rooting knowledge and action in socio-cultural-historical settings'.

### **Parallels between Didaktik and cultural psychology, activity theory and social practice theory**

In this section I will seek to identify 'connections and parallels' between the various perspectives outlined in the previous section and the issues raised in the discussion paper (Seel 1999, chapter 1 of this publication). The immediate observation of the emphasis that is placed on the social and

cultural aspects of education with reference to the “anthropological basics and foundations in educational sciences (‘Erziehungswissenschaften’)” has already been discussed in the introduction. However this is re-emphasised as being a key similarity and stands in sharp contrast to the individualistic psychology that has dominated thinking about teaching and learning in the US and UK for so long.

Seel argues that “those processes of learning, which in their entirety represent the process of “Bildung”, receive their impetus by dealing with people and experiences with objects”. The parallel here is with the Vygotskian emphasis on social interaction and the mediational role of tools. That they “occur occasionally and may be seen to be accidental and disordered” reflects the Vygotskian view of development as “a complex, dialectical process characterised by a multifaceted, periodic timetable ... by complex mixing of external and internal factors, and by the process of adaptation and surmounting of difficulties” (Vygotsky, 1981). The emphasis on the overarching goal of helping young people to become “more responsible and competent members in the sense of educated personalities (‘Gebildete’)” reflects the emphasis placed by social practice theory on learning as an aspect of participation in communities of practice under the conditions of *legitimate peripheral participation* (LPP). This idea is elaborated further in the discussion paper with reference to an “intermediate actual state in the process of personal development” i.e. the “status of being in a culture” with the overall aim of becoming “an able member of an esteemed society” or expert.

The idea that “spontaneous and situational learning has to receive support and supplement by planned intentional teaching” reflects two further aspects of Vygotskian thinking. Firstly there is the notion of learning based upon the acquisition of “scientific” and “spontaneous” concepts. Scientific or systematic concepts are seen to be those abstract concepts that are part of the culture e.g. of mathematics, science etc. In contrast spontaneous concepts are seen as being more “concrete”, based on face to face meetings with a “concrete” situation. The development of the learner’s spontaneous concepts proceeds upwards and the development of the scientific concepts downward, supplying the structures for upward development. This also reflects the emphasis of Mellin-Olsen (1987) on the dialectic between “inside-classroom activities” and outside activities. Secondly is the notion of the “zone of proximal development” (ZPD) – the distance between the actual developmental level as determined by independent problem solving and the level of potential problem solving under adult guidance or in collaboration with more capable peers. These ideas are elaborated further in the discussion paper under the headings of “natural” (spontaneous) and “institutional” (scientific) learning.

The emphasis on the “selection and provision of cultural components as goals and content of learning” reflects the central notion of goals in activity theory and social practice theory. This idea is developed further in stating the overall aim of “Didaktik” as being the “educated personality” (“Gebildete/r”) which is specified as:

- (i) in an egalitarian sense it has to apply to all citizens
- (ii) as regards content, it relates to central problems of living and
- (iii) surviving relevant to everybody and these may be called ‘key problems’
- (iv) as regards the human potential it relates to all human capabilities

(Seel, 1999)

In reflecting on the overall aim of “Didaktik”, there are parallels with the idea of activity (in its strong sense) through the way in which it provides purpose in the “supporting of learning to acquire ‘Bildung’”.

Within “Didaktik” a theory of syllabus (‘Lehrplantheorie’) is identified and specifically distinguished from the notion of “curriculum” in the discussion paper. This is seen to concern the following two questions:

- (i) Legitimation and structuring of learning areas
- (ii) Selection and definition of learning goals and learning subjects.

With regard to teaching two aspects are identified:

- (i) How has the process of teaching to be structured so that students find optimal conditions for their learning?

With respect to this question it is suggested that it is necessary to find structures of teaching based on and compatible with structures of active learning. Reference is made to gestalt psychology though there are also clear parallels with the notion of “scaffolding” as outlined by Bruner (1985) based upon Vygotsky’s work. The second question is:

- (ii) How have the learning situations in the social context of a classroom to be arranged, so that students find ample opportunity for individual and active learning?

With regard to this question, it is suggested that “a balanced relationship between autonomy of the learner and external guidance by the teacher has to be found”. This aspect is resonant with the role of the teacher within Vygotsky’s zone of proximal development. A further parallel to the ZPD can be found in the statement that:

*Teachers who arrange learning situations following a problem-oriented approach seem to fulfil the pedagogical goal of reducing the difference of competence between teacher and student and therefore helping the student to emancipate.*

### **“Fachdidaktik” (Subject Didactics)**

The distinction made in the discussion paper between “Allgemeine Didaktik” (General Didactics) and “Fachdidaktik” (Subject Didactics) mirrors the distinction in England and Wales of Professional Studies and Subject Studies. The proposal is that “Fachdidaktik” should be concerned with:

1. Matters relating to the teaching content of subject teaching.
2. Matters relating to subject specific teaching processes.

Within the first category it is suggested that the educational purposes of the subject should be included together with the science-subject relationship, syllabus of the subject, subject matters and content and learning objectives. These seem relatively uncontroversial apart from the science-subject relationship that is likely to be open to a variety of interpretations. With regard to the second category this includes teaching structure and process, teaching methodology, media and evaluation. This area is one which is rich in potential for further discussion and sharing of perspectives and issues which are likely to be subject to wide cultural differences.

As one example, the call for a science of education in the field of mathematics education is not a novel idea. Gattegno (1987) first published his work in the form of a book entitled *The Science of Education, part 1: theoretical considerations*. In writing on this theme Tahta (1988) comments that “Gattegno’s proposal is that shared awareness is an appropriate basis for a science”. Gattegno

suggests the need to enlarge our notion of science to cover the “know-hows” associated with growing food or making tools, “so that we can grant that our ancestors were also “scientists””. There are parallels with social practice theory in such a perspective. Gattegno argues that all sciences begin with a new awareness – “of light, or sound, or, in the case of mathematics, of relations as such”. Tahta proceeds to argue that the science of education” is concerned with the awareness of awareness itself”:

*... with listening and not with sounds, with touching and not with what is being touched,. With tasting and not with the cause of the taste, with smelling and not with the atoms which reach one’s nose.*

(Gattegno, 1987)

He proceeds to direct your attention as the reader of the text by asking you to let yourself become conscious of your reading, as you read these words. “Do your eyes flicker? Do you take in chunks at a time? What images do you invoke? Are you with the reading? Are you now with the self that was with the reading?” He quotes Gattegno who argues that when “watchfulness” becomes second nature and one is able to adjust immediately to the “subtle demands of consciousness” then it is possible to say that one is a scientist in the science of education.

So, argues Tahta, “the science of education uses aspects of *watchfulness* as its tools and a process of *continuous feedback* as its verification”. This is resonant with Imsen’s (1999) idea of the ‘learning circle’ which is itself consistent with the action research cycle of planning, action, observation and reflection which has been used widely and effectively by practitioners in the UK. An important role for the teacher according to Gattegno is in “forcing awareness”. This has echoes of the role of the teacher in Vygotsky’s ZPD. It is addressed explicitly by Tahta who quotes Simon (1985) as claiming that “the ideals of universal education are floundering for the lack of a pedagogy that emphasises what children have in common as opposed to their individual uniqueness.” This is interpreted as a call for “a science of education” and he proceeds as follows:

*There seem to be two competing choices. Either we continue to enquire what children can do as individuals and then create ‘learning environments’ in which they can create their own mathematics, and so on. Or – and this may be unpalatable to some readers – we try to find out what it is that all children have done and can do, and then teach them – in groups – in a more directed and sustained way.*

(Tahta, 1988)

Tahta also discusses “ways of knowing” and gives the example of “intuition” which is illustrated in relation to the use of geoboards, cuisenaire rods and mathematical films. He argues that intuition “demands the whole of one’s self” and that this is what is required when one meets and tries “to maintain complexity”. He argues that it operates in “precisely the opposite way to the ‘focusing’ traditionally stressed in Western thought and education”.

## **Discussion**

Two of the major issues raised by this discussion are the tensions between individualistic and social perspectives and those between fragmentation and integration (holism). The issues around the former have been the subject of much consideration in this paper and those related to the latter have been touched upon. In tracing the historical development of the separation of the German and American traditions, Kansanen (1995) cites Doyle and Westbury (1992) as the source of the quote, attributed to Ellen Lagemann, that “one cannot understand the history of education in the United States during

the 20<sup>th</sup> century unless one realises that Edward L. Thorndike won and John Dewey lost”. He proceeds to observe that this way of thinking “was too fragmented and its behavioural and experimental features were too narrow to apply to the whole process of education”. Vygotsky (1962, 178–179) has some pertinent observations to make on such a perspective in a discussion concerning the issue of the role of formal discipline in the tradition of Herbart. He explains the idea as maintaining that “instruction in certain subjects develops the mental faculties in general, besides importing knowledge of the subject and special skills.” He argues that this is a “genuinely sound idea” but that it led to the “most reactionary forms of schooling, such as the Russian and German ‘classical gymnasiums’” which stressed Latin and Greek as sources of “formal discipline”. He proceeds to argue that Thorndike “did his best to discredit formal discipline and to prove that instruction had no long term effects on development”. He develops his argument by observing that Thorndike’s criticism is convincing in relation to the “ridiculous exaggerations of the doctrine of formal discipline” but that it does not “touch its valuable kernel”.

On Thorndike’s methodology, Vygotsky observes that this involved “experimentation with the narrowest, most specialised, and most elementary functions”. He argues that “from the point of view that of a theory that reduces all learning to the formation of associative bonds, the choice of activity would make little difference”. The following summarises the critique that Vygotsky makes:

*Thorndike’s work merely makes it appear likely that there are two kinds of instruction: the narrow specialised training in some skill, such as typing, involving habit formation and exercise and more often found in trade schools for adults; and the kind of instruction given schoolchildren, which activates large areas of consciousness. The idea of formal discipline may have little to do with the first kind, but may well prove to be valid for the second. It stands to reason that in the higher processes emerging during cultural development of the child, formal discipline must play a role that it does not play in the more elementary processes: All higher mental functions have in common awareness, abstraction and control. In line with Thorndike’s theoretical conceptions, the qualitative differences between the lower and higher mental functions are ignored in his studies on the transfer of training. (Vygotsky, 1962)*

In considering developments in England and Wales over recent years, it is clear that this has been a period of increasing fragmentation, initially through the introduction of an over-prescribed National school syllabus (mistakenly described as a Curriculum) which from the outset has been in a process of unravelling. Recently these principles have been applied in similar fashion to teacher education itself in a way which suggests that lessons have not been learned from past mistakes. Combined with this development has been the establishment of elaborate systems of inspection, monitoring and evaluation in the name of accountability, improvement and effectiveness. The consequences of such developments, if they were to have any lasting impact on teachers and teaching, would be to reduce the role of the teacher to that of technician.

However it seems clear that one way towards effective reform of the system is by winning over the hearts and minds of the teaching profession as a whole. In recent years political leaders have not demonstrated even satisfactory levels of competence in this respect. Unfortunately the adversarial approach continues to be taken by leading figures in the relevant government agencies. In the case of the Teacher Training Agency the adversaries are the teacher educators in the universities whilst with the Office for Standards in Education, almost the entire teaching profession has come to feel vilified by Her Majesty’s Chief Inspector (HMCI). In this respect it is forcibly argued by a predecessor (Pyke, 1998) that the role of HMCI is now ‘out of control’, having accused the current post holder of using unprovable statistics and polemic. It is unfortunately the case that this is a view that is

likely to attract wide support throughout the teaching profession in England and Wales, which in itself may prove to be a major obstacle to constructive engagement and future development of the profession as a whole.

Given such a context it is particularly interesting that the Teacher Training Agency has come to appropriate the term “pedagogy”. However this has happened without any underpinning theoretical basis having been elaborated and is illustrative of an atheoretical approach which does not see the need for an academic aspect to the preparation of teachers. The Chief Executive of the TTA is reported as seeing pedagogy as ‘the science, the art, the craft of teaching – as central to the issue of learning effectiveness and, therefore, a prerequisite for school improvement’ (Levis, 1998). However as Bassey (1998) points out what is ignored, or even unrecognised, is the range of ideological positions that underpin the practice of teaching. He argues that ‘policy and practice vary according to whether there is a belief that the most important role of the teacher is to transmit subject knowledge or to foster the moral, social, creative and intellectual growth of pupils and students’. Similarly one may hold to the reductionist view of learning, as elaborated long ago by Thorndike, or ascribe to Vygotsky’s recognition of learning as being concerned with the development of ‘higher mental functions’.

In reflecting on these developments it is pertinent to consider what, if any, lessons might be learned to guide future developments. As indicated earlier, the signs from the TTA and OFSTED are not hopeful in terms of building trust with the teaching profession at this time. Unfortunately the adversarial and chastising approach has also been adopted by some government ministers, thus limiting, and possibly even curtailing, chances for constructive engagement with the teaching profession. However there are more hopeful signs emerging from the Qualifications and Curriculum Authority (QCA). In discussing the aims of the national curriculum review for schools, the Chief Executive of the QCA writes that:

*In taking forward this agenda, QCA will involve teachers and other partners in the education service. One lesson we learned from the first version of the current curriculum is that unless there is shared understanding of why changes are being made, and a commitment to them, they are unlikely to succeed. The forthcoming revision is a much more limited exercise, but the principle still applies. The exercise will proceed collaboratively, with full consultation, and on the basis of firm evidence that it works.*

(Tate, 1998)

A particularly encouraging sign is the recognition by the QCA that the National Curriculum for England and Wales is distinctive for its lack of ‘a clear and explicit rationale’ and associated set of aims. The lack of a shared sense of purpose is acknowledged and stands in sharp contrast to the overall aim associated with Didaktik of ‘Gebildite’ or ‘educated personality’ comprising (i) ‘in an egalitarian sense it has to apply to all citizens; (ii) as regards content, it relates to central problems of living; (iii) is relevant to everybody and may be called ‘key problems’ and (iv) as regards the human potential it relates to all human capabilities’

(Seel, 1999)

A second hopeful sign, despite the adversarial style, is the start of a debate about what constitutes pedagogy in England and Wales. In terms of moving the debate forward at this time I wish to propose a broad understanding of pedagogy, consistent with the ‘continental’ approach so applauded by the TTA Chief Executive. In particular, I would like to propose the following definition of pedagogy:

*The term ‘pedagogy’ is broadly understood. It raises the question of the place and meaning of children and youth in the frame of human experience. It asks for the nature of home and school life and for the meaning of learning and curriculum experiences of those who inhabit educational institutions. It raises the question of what it means for one adult (teacher, parent, counsellor, administrator, psychologist, social worker, or friend) to be pedagogically present to another. And pedagogy raises the need for a critical examination of relevant professional practices, particular modes of reasoning, and of those institutional and societal arrangements which make an emancipatory praxis necessary.*

(van Manen, 1983)

Associated with such a broad understanding of pedagogy is the need for an appropriate range of research methodologies. In particular the relevance of phenomenological approaches should be considered which are defined by van Manen as ‘those forms of thinking or enquiry which in some way maintain a perspective on the lived human experience’. He outlines further the way in which such an attitude ‘creatively seeks approaches which may yield a deeper understanding of the nature of pedagogy: the way we are to live with children or those, young or old, with whom we stand in a pedagogic relationship.’

With regard to “Didaktik”, Kansanen (1995) suggests that if we emphasise the normative side of “Didaktik”, the most appropriate description would be “the art of teaching”. However he argues for a wider definition which includes a “reference to learning in its meaning”. It is appropriate that consideration be given to the notion of the development of a science of education transcending that which emphasises the normative aspects of “Didaktik” and in doing so combines this aspect with a similar emphasis on learning. In relation to this it is relevant to note that in Russian there is only one word, “Obuchenie”, for teaching/learning. This idea has a parallel with that of “Unterrichtsfach” which Kansanen suggests is best translated as teaching-studying-learning. This implies a model of human development that is very different from an internalistic individualistic theory that has resulted from the dominance of this field by an individualistic psychology for so long. It also implies a re-conceptualisation of the teaching-learning process for many policy makers in the UK. It requires a move beyond the false dichotomy between teaching and learning and beyond the practice of ‘thinking in boxes’ when it comes to educational policy making. It also requires a recognition that the education process is concerned with the development of ‘higher mental functions’ and not narrowly conceived technical competences.

## References

- APPLE, M. (1995) Taking power seriously: new directions in equity in mathematics education and beyond. In SECEDA, W., FENNEMA, E. and ADAJIAN, L. (eds.), *New Directions in Equity in Mathematics Education*, Cambridge University Press.
- BASSEY, M. (1998) Fuzzy generalisations and professional discourse, *Research Intelligence* 63, <http://www.scre.ac.uk/bera/ri/no63/ri63fuzzy.html>
- BRUNER, J. (1985) Vygotsky: a historical and conceptual perspective. In: WERTSCH, J. V. (ed.), *Culture, Communication and Cognition*, Cambridge University Press.
- COBB, P., WOOD, T. and YACKEL, E. (1991) A constructivist approach to second grade mathematics. In VON GLASERFELD, E. (ed.), *Radical constructivism in mathematics education*, pp.57–176, Dordrecht, The Netherlands, Kluwer.
- CRAWFORD, K. (1996) Vygotskian approaches in human development in the information era, *Educational Studies in Mathematics*, 31: 43–62.
- DOYLE, WALTER, IAN WESTBURY. 1992. Die Rückbesinnung auf den Unterrichtsinhalt in der Curriculum- und Bildungsforschung in den USA. *Bildung und Erziehung* 45: 137–157.
- GATTEGNO, C. (1987) *The Science of Education, part 1: theoretical considerations*, Educational Solutions, Reading.
- HOPMANN, S. and KUENZLI, R. (1992) Didaktik – Renaissance. *Bildung und Erziehung* (45/2)

- IMSEN, G. (1998) Reflection as a bridging concept between normative and descriptive approaches to didactics, Chapter 7 of this publication.
- JONES, A. and MERCER, N. (1993). Theories of learning and information technology. In SCRIMSHAW, P. (ed.), *Language, Classrooms and Computers*. Routledge.
- KANSANEN, P. (ed.) (1995) *Discussion on Some Educational Issues VI*, University of Helsinki
- KOZULIN, A. (1990). *Vygotsky's Psychology: A Biography of Ideas*, Harvester.
- LAVE, J. (1988) *Cognition in Practice*, Cambridge University Press.
- LAVE, J. and WENGER, E. (1991). *Situated Learning: Legitimate Peripheral Participation*, Cambridge University Press.
- LAVE, J. (1996) Teaching, as learning, in practice, *Mind, Culture and Activity*, 3, 3: 149–164.
- LERMAN, S. (1996). Intersubjectivity in mathematics learning: a challenge to the radical constructivist paradigm, *Journal for Research in Mathematics Education*, 27(2): 133–150
- LERMAN, S. (1997) The psychology of mathematics teachers' learning: in search of theory, *Proceedings of PME 21: International Group for the Psychology of Mathematics Education Conference*, Finland, 3: 200–207.
- LEVIS, N. (1998) Let's get pedagogical, *Times Educational Supplement*, 12 June, 28.
- MELLIN-OLSEN, S. (1987) *The Politics of Mathematics Education*, D. Reidel Pubs, Dordrecht.
- PYKE, N. (1998) Chief inspector's role 'out of control', *TES (Times Educational Supplement)*, March 27 1998
- SEEL, H. (1999): "Allgemeine Didaktik" ("General Didactics") and "Fachdidaktik" ("Subject Didactics"). Chapter 1 of this publication.
- SINCLAIR, J. (1987) *Collins Cobuild English Language Dictionary*, Collins ELT.
- SIMON, B. (1985) *Does Education Matter?*, Lawrence and Wishart.
- TAHTA, D. (1988) The Science of Education, *Mathematics Teaching*, 125, Dec 1988.
- TATE, N. (1998) It's good to listen, *Times Educational Supplement*, 29 May, 15.
- URDANG, L. (1991) *The Oxford Thesaurus: An A-Z Dictionary of Synonyms*, Oxford University Press.
- VAN MANEN, M. (1983) *Phenomenology + Pedagogy*, 1, 1.
- VON GLASERFELD, E. (1987) Learning as a constructive activity. In JANVIER, C. (ed.) *Problems of Representation in the Teaching and Learning of Mathematics*, Lawrence Erlbaum.
- VYGOTSKY, L. S. (1981) The genesis of higher mental functions. In WERTSCH, J. V. (ed.) *The Concept of Activity in Soviet Psychology*, Armonk, NY: M.E. Sharpe, Inc.: 144–188.
- VYGOTSKY, L. S. (1962) *Thought and Language*, MIT Press.

School of Education  
 Sheffield Hallam University  
 Collegiate Campus  
 Sheffield S10 2BP, UK  
 Tel: +44 114 225 2346  
 Fax: +44 114 225 2339  
 Email: [B.G.Hudson@shu.ac.uk](mailto:B.G.Hudson@shu.ac.uk)

