POLANYI'S SOCIAL CONSTRUCTION OF PERSONAL KNOWLEDGE AND THE THEORIES OF SITUATED LEARNING

Cristina Frade

Universidade Federal de Minas Gerais – UFMG

cristina@coltec.ufmg.br

@ is replaced by (at) to stop the automatic garnering of email addresses by Spam factories - Editor

In this paper we argue that *Polanyi's social construction of personal knowledge* is very similar to what we understand currently as *situated learning perspectives* in the field of mathematics education. More specifically, we argue that *Polanyi's concept of tradition* precedes the concept of *communities of practice* in that field.

INTRODUCTION

In order to discuss the role of the social in the construction of personal knowledge, according to Polanyi (1962), it is important to keep in mind the distinction between the concepts of 'personal' and 'subjective' in his epistemology. This is because, in the past, this epistemology was mistakenly thought as directed toward subjective knowledge (Jha, 1997). The difference between those two forms of knowledge – personal and subjective – lies in the individuals' commitment to verification and validation of their premises or results, within any given system of beliefs. Subjective knowledge does not require any such necessity:

> Our personal participation [in an act of tacit knowing] is in general greater in a validation than in a verification…[However] both *verification* and *validation* are everywhere an acknowledgement of a commitment: they claim the presence of something real and

external to the speaker. As distinct from both of these, *subjective* experiences can only be said *authentic*, and authenticity does not involve a commitment in the sense in which both verification and validation do.

(Polanyi, 1962, p.202)

Thus, the search for verification and, mainly, for validation – that leads the individual to transcend his/her own subjectivity – gives to personal knowledge a public character. On the other hand, how much such a knowledge is based on the social is described to us through Polanyi's concept of tradition.

TRADITION AND COMMUNITIES OF PRACTICE

Polanyi was one of the precursors of the concept of communities of practice, more specifically, in the case of scientific practice in the middle of the 20th century (Polanyi, 1962; Jacobs, 2002). However, he introduced such a concept in terms of tradition, a system of values that describes how knowledge is transferred within a social context:

An art which cannot be specified in detail cannot be transmitted by prescription, since no prescription for it exists. It can be passed on only by example from master to apprentice. This restricts the range of diffusion to that of personal contacts…[for example] while *the articulate contents of science* are successfully taught all over the world in hundreds of new universities, *the unspeciafiable art of scientific research* has not yet penetrated to many of these…To learn by example is to submit to authority. You follow your master because you trust his manner of doing things even when you cannot analyze and account in detail for its effectiveness. By watching the master and emulating his efforts in the presence of his example, the apprentice unconsciously picks up the rules of the art, including those which are not explicitly known to the master himself. These hidden rules can be assimilated only by a person who surrenders himself to that extend uncritically to the imitation of another. A society which wants to preserve a fund of personal knowledge must submit to tradition…we accept the verdict of our appraisal, be it at first hand by relying on our own judgment, or at second hand by submitting to the authority of a personal example as carrier of a tradition.

(Polanyi, 1962, p.53)

Based on Polanyi's description of tradition we can construct some interpretations. First, submitting to tradition of a socially established art demands an enculturation of persons that make up the practice associated with it. The individuals whose participation in this practice share language, actions, rules, norms and values. Thus, values are not subjective. Indeed, according to Sveiby (1997, p.4), "tradition is a system of values outside the individual. Both language and tradition are social systems which take up, store and convey the knowledge of society".

Secondly, in a tradition there is a clear placement among its participants; a hierarchy in a apprentice/master scale. In this sense, the apprentices are individuals that submit themselves to an authority – the master – in a relation that involves legitimacy, credibility, trust and confidence. We understand that at the first moment of that submission the learning can be a-critical, as Polanyi says: the apprentice relies on his/her master and surrenders to his/her knowledge, without questioning, because he/she attributes to the master the legitimacy of his/her way of acting. However, at a second moment the apprentice is able to reconstruct the master's version of knowledge, as well as to judge his/her competence. Finally, when the apprentice is able to preserve the ideals of the tradition he/she is then liberated: the apprentice/master relation changes or is suspended. Thus, the formation of knowledge within a tradition takes place locally – apprentice/master relation – as well as in the professional performance. This suggests that an individual is not competent *per se*. In contrast, it is in function of his/her role or performance within a social context that a competence will be attributed to him/her: the success or failure of an individual in the community is that which causes him/her to be recognized as competent. Thus, we can say that tradition is not a mere stimulus that activates or triggers the learning process of an individual's personal knowledge, it is constitutive of a part of that knowledge. The individual acquires part of his/her personal knowledge through an immersion in the practice. This, in its turn, implies a delimitation of the learning process: a great part of a tacit knowledge of an art is preserved in the tradition. In the case of mathematics

learning we understand that this does not mean that an authentic mathematics experience cannot take place outside the mathematical community.

On the other hand, some limitations of Polanyi's concept of tradition need to be considered. One relates to the fact that Polanyi seems to regard tradition as a process in which the master is always older than the apprentice. According to Sveiby (1997) such a conception is consistent with most professions up to the 1970's, but currently is not. Another is that Polanyi does not discuss the interactions between master and apprentice and among apprentices. In his description of tradition, the learning process seems to take place in only one direction: from master to apprentice.

Excepting the above comments and others, which I was unable to identify, such a description is very close to the current characterizations of communities of practice, as for instance, those made by Winbourne and Watson (1998):

1. participants, through their participation in the practice, create and find their identity within that practice (and so continue the process of creating and finding their more public identity);
2. there has to be some social structure which allows participants to be positioned on an apprentice/master scale;
3. the community has a purpose;
4. there are shared ways of behaving, language, habits, values, tool-use;
5. the practice is constituted by the participants;
6. all participants see themselves as engaged essentially in the same activity. (p.94)

Number 6, of the quotation above, suggests, in contrast to what Polanyi seems to suggest, that learning within a community of practice is bi-directional: all its participants are active in the practice in the sense that they all learn from each other.

In general, we consider Polanyi's concept of tradition to be very similar to what we understand currently as situated learning perspectives in the field of mathematics education (Lave, 1988; Watson, 1998). The central notion of those perspectives is that part of knowledge cannot be detached from its context of origin

to be employed or used. In the case of tradition, such a knowledge corresponds to tacit or personal knowledge.

REFERENCES

Jacobs, S.: 2002, Polanyi's presagement of the incommensurability concept, *Studies in History and Philosophy of Science*, Vo. 33, 105-120.

Jha, S. R.: 1997, 'A New Interpretation of Michael Polanyi's Theory of Tacit Knowing: Integrative Philosophy with 'Intellectual Passions'', *Studies in History and Philosophy of Science* 28 (4), pp.611-631.

Lave, J.: 1988, *Cognition in Practice*, New York, Cambridge University Press.

Polanyi, M.: 1962, *Personal Knowledge,* London, Routledge and Kegan Paul.

Sveiby, K. E.: 1997, 'Tacit Knowledge', <http://www.it-consultancy.com/extern/sveiby-tacit.html> (18/07/2002)

Watson, A., ed.: 1998, *Situated Cognition and the Learning of Mathematics*, Oxford, University of Oxford Department of Educational Studies.

Winbourne, P. and Watson, A.: 1998, 'Participating in learning mathematics through shared local practices in classrooms', *Situated Cognition and the Learning of Mathematics* in A. Watson (ed.), Oxford, University of Oxford Department of Educational Studies, Chapter 7, pp. 93-104.