BELIEFS ABOUT LEARNING

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How would you respond to the question "What do you mean by learning?" Stop and think for a moment. It is not easy, is it? Probably like many others you have not given much thought to the nature of learning and yet you are doing it in some form every day of your life.

Researchers looking into the fascinating question of how students learn have discovered that what students mean by learning has important effects on the way they approach learning tasks and also on what they understand by good teaching. The work began with the question being posed to groups of people aged between 17 and 70 years in Sweden nearly 15 years ago. Discussion of the question, and subsequent analysis of the transcript revealed five broad descriptions of the nature of learning. These were labelled "conceptions of learning" or "beliefs about learning". Professor Ference Marton of the University of Gothenburg explained that the method used to obtain the descriptions from the transcripts is based on the idea of "trying to describe an aspect of the world as it appears to the individual".[1] This description or conception represents learning as seen by individuals. The descriptions were first documented and analysed by Roger Saljo, also of the University of Gothenburg, and the categories of analysis have subsequently been replicated in findings by researchers in other parts of the world.[2]

The five descriptions of learning are:

(i) the increase of knowledge.
(ii) memorising.
(iii) acquisition of facts, procedures etc which can be retained and/or utilised in practice.
(iv) abstraction of meaning.
(v) an interpretive process aimed at an under standing of the world around or seeing some thing in a different way.

The accounts can be divided into two groups, 1-3 and 4-5. In the first group the learner sees learning as a process of acquiring knowledge without examining it. This is usually called "passive" learning. Conception 4 has the idea of looking for meaning, making sense of the material and working at it until it becomes internalised, or begins to become a part of the learner and so is no longer just words on a page. Conception 5 takes this a stage further, since it deals with a kind of learning that has enabled the person to see something in a new and different way. These attributes describe the kind of learning that is usually called "active". At this point it would be useful for you to stop and think whether any of the descriptions of learning fit your conception of the meaning of learning.

A further development that came out of this work will be of interest to teachers. A group of students were asked, "What do you mean by good teaching?" The striking result from the analysis of their responses was that students' conceptions of learning correlated with their conceptions of good teaching. Thus the student who saw learning as "memorising" believed symmetrically that good teaching was characterised by the ability to assist students to memorise their work well. Framed by this viewpoint, a teacher who was aiming to get students to think through problems and

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who sought to encourage them in ways of self-directed learning was not viewed as a good teacher in spite of the fact that these processes were designed to promote deeper and more lasting learning than could be achieved through mere memorisation.

This poses a problem for teachers seeking to encourage active learning, since there is evidence of student resistance to anything that seems to depart from the

set syllabus. One possible way around this problem might be to redesign the assessment so that the examinations test understanding and not just recall. Since in the secondary school system end-of-course examinations are set by external bodies and are not under the control of teachers, there needs to be some lobbying by teachers' groups to bring about change.

As well as identifying general beliefs about learning, such research has also revealed student beliefs about subjects like Maths, Chemistry, History and Foreign Languages, together with their effects on the way students learn. Alan Schoenfeld, a Mathematics educator from the U.S.A., found that while students were easily able to prove a certain geometrical theorem, they were unable successfully to construct with ruler and compasses a solution to a practical problem that drew upon the knowledge of the proof for a solution.[3] This was because of the way the group had been taught Geometry, which had lent support to the proposition that there was no connection between formal proofs and construction. In addition, Schoenfeld was able to infer that students held other beliefs about Maths, such as the view that "all problems can be solved in just a few minutes" and that "only a genius is capable of discovering, creating or really understanding Maths." The first belief results from never being exposed to complex problems, and the second from thinking that Maths consists mostly of rules and formulae to be memorised. The tragedy of the second belief is that it makes it almost impossible for students to develop problem-solving skills. Schoenfeld's conclusion should shock us all into looking for ways of changing the way students think about a subject.

Can student beliefs be changed? It is not easy since they have been developed over years of experience of learning in formal education. Furthermore, a well established belief system is hard to change; a person needs to be fully persuaded that a change will be for the better. Again it seems unfortunately true that students with inadequate beliefs about learning can still be successful in examinations so the cynic might well ask, "Why bother interfering if the results are satisfactory?" It depends on whether we want students to develop high-level thinking skills that will equip them better in the work place and in life generally.

Before asking whether student beliefs can be changed, we have to ask "What are the beliefs that students have about the subjects we teach?" Although this question is best examined by talking to students about the way they approach a Maths problem, or a piece of work in another discipline, some ideas may be gleaned by constructing a short questionnaire containing statements about the subject: eg "Maths consists of rules and formulae to remember" or "Maths is not relevant to everyday life"; or "Learning a foreign language is difficult for most people". Students can be asked to rate the measure of their agreement with the statements using a five point scale. The next stage is to design teaching in a way that brings about changes in the conception of what learning is possible or desirable. For example, a group of women in America who were anxious about Maths and whose past experience made them view Maths as something that was "handed down from on high", and not something that could be devised by human beings, were helped to change to a more positive view of Maths by being shown a little of the history of Maths and being helped to solve some problems for themselves.[4]

So what does all this add up to for our own students? What beliefs do they hold and what effects do they have on their learning? What about us as teachers? How do our beliefs about the subject we teach affect the way we teach? It would be worth trying to look systematically for answers to these questions, also.

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