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CONCEPTIONS OF LEARNING AMONG TEACHERS AND STUDENTS IN
HIGHER EDUCATION: A SWEDISH-POLISH COMPARATIVE STUDY

Dahlgren L.O., Abrandt Dahlgren, M., Hult, H., Hård af Segerstad, H. - Linköpings
Universitet;

*Szkudlarek T., Gajda M., Jurgiel A., Kopciwicz L., Marzec J., Meczowska A., Mendel
M.* – Uniwersytet Gdanski

Publicerad

Dahlgren L, Abrandt Dahlgren M, Hult H, Hård af Segerstad H, Szkudlarek T.

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Abstract

The article presents conceptions of learning among students and teachers at two European universities, in Linköping (Sweden) and Gdansk (Poland). The research was conducted along the principles of phenomenography by two teams working simultaneously on their respective samples. The strategy of sampling and interviewing, as well as the rules of interpretation, were discussed and kept as similar as possible by both teams. In some cases a procedure of cross-interpretation was applied, another tested i.e. the categories identified by one team as possibly applicable to their own empirical material. The analysis of the Swedish material yielded three different categories describing the conceptions of learning among teachers and students: Learning as *change*, as *completion*, and as *contextualisation*. There is a potential conflict between teachers' and students' perspectives in that the students emphasise the relevance for the coming profession, while teachers hold a more academic conception of the nature of learning and the driving forces for learning. In the Polish sample, four categories of learning were discerned: learning as *an instrument*, as *change*, as *acquisition of knowledge*, and as a *natural (biological) disposition*. In the Polish material a clear distinction between two different milieus for learning, those of institutions and of "real life situations", has been spotted as critical to the understanding of the nature of learning.

The comparative analysis of the outcome of the phenomenographic analyses aims at identifying hypothetical factors of cultural difference that could have influenced both outcome spaces. However, this part merely sketches the issue. The present report is part of a broader project aiming at analysing the conceptions of learning, knowledge,

teaching and assessment, and a more complete comparative analysis will only be possible after all the parts are presented.

Introduction

Phenomenographic research on learning has a long and vivid tradition. However, comparative studies that apply the phenomenographic approach are not very frequent. In this research, a group of collaborators from Linköping and Gdansk decided to use a parallel procedure of investigations into the network of concepts pertaining to the process of academic education in their respective universities. The following text describes and discusses the outcomes of the conceptions of learning elicited in the series of interviews with teachers and students of the two universities.

The samples were designed so as to provide for a variety of disciplines and specialisations within both universities. In the final analyses, the tape-recorded interviews from 17 students and 17 teachers from Sweden, and 19 students and 13 academic teachers from Poland were transcribed and used for further analyses. We worked in our respective native languages, and it was only at the stage of seminar presentations that the reports and fragments of transcripts were translated into English as the common language of communication and comparative analyses. The transcripts were analysed by groups of 4-5 researchers in each university, according to a three-step process as described below:

Joint analysis of the “national’ samples of subjects according to the principles of phenomenography, in order to identify preliminary categories of meaning. (Incomplete sentence. To be deleted?)

Conceptions of learning – Previous research

Säljö (1982) in a study among adults with different levels of formal education found five different conceptions of learning; *a qualitative increase in knowledge, memorising, the acquisition of facts and methods etc for use when necessary, the abstraction of meaning and an interpretative process aimed at understanding reality.*

Marton et al (1993), in an analysis of interviews with 29 students at the Open University, besides being able to confirm Säljö's findings, also discerned a sixth conception of learning that was labelled *Learning as change as a person*. According to the authors, learning as changing as a person is held to be the most elaborate conception of learning. This conception implies changing not only in the way the world is experienced but also means changes in attitudes and values.

Eklund-Myrskog (1998) conducted a phenomenographic cross sectional study to investigate students' conceptions of learning in different educational contexts. Student nurses (n=60) and mechanics students (n=54) were interviewed in the beginning and at the end of their studies. The conceptions found were *remembering, understanding, applying knowledge based on understanding, applying knowledge based on knowing how to do, getting a new perspective and forming a conception of one's own*. The differences found between the groups could be explained in terms of educational contexts and the students' conceptions about learning were more developed in the end compared with at the beginning of their studies.

The aim of a study by Bruce and Gerber (1995) was to contribute to understanding the notions about students' learning held by lecturers in a range of disciplines. Lecturers from professionally oriented courses, e.g. nursing, engineering, education, were asked to focus on undergraduate students during the interview. The conceptions of learning derived from the interviews were: *Acquiring knowledge through the use of study skills,*

the absorption of new knowledge and being able to explain and apply it, the development of thinking skills and the ability to reason, developing the competencies of beginning professionals, changing personal attitudes, beliefs or behaviours in responding to different phenomena, and a participative pedagogic experience.

Prosser, Trigwell and Taylor (1994) in their study focused on conceptions of teaching and learning held by teachers in first year university courses in chemistry and physics. Teachers (n=24) from two universities were interviewed. The conceptions of learning derived from the data were; *learning as accumulating more information to satisfy external demands, learning as acquiring concepts to satisfy external demands, learning as acquiring concepts to satisfy internal demands, learning as conceptual development to satisfy internal demands, learning as conceptual change to satisfy internal demands.*

Lonka and Lindblom-Ylänne (1996), in a questionnaire study comprising open-ended as well as Likert scale response mode questions, asked 175 students from either psychology or medicine to give their notions of learning. They found that senior students in psychology tended to express constructivist conceptions of learning more often than seniors in medicine, who more often reported a notion of learning as an intake of knowledge.

Wisker et al (2001) carried out an action research project aiming at making students aware of their own approaches to learning. An instrument “Reflections on Learning Inventory” (RoLI) developed by Meyer and Boulton-Lewis, (1997), was presented to the students who took part in the study. Based on the results of this inventory a set of open-ended focus group questions was formulated. Students in the first and third year studies participated. The focus groups discussions were centred around; (i), conceptions of knowledge and learning approaches demanded by the discipline, (ii), how students gradually appreciate the learning demands of and develop the skills necessary for their

discipline study, (iii), how knowledge demands and learning outcomes are achieved and what the learning experiences and strategies of the students are. The completion of the questionnaire as well as participation in the focus group discussions has encouraged the students to focus on any dissonance between their conceptions and approaches and learning demands. The RoLI instrument builds on the distinction between *Learning as transformation* and *Learning as Accumulation*. The study confirmed some of the stereotypes e.g. students of law and computer skills for linguists are likely to have an accumulation conception.

Reid (2001), asked students of instrumental and vocal music about how they experience and understand learning. The variation in the answers comprised: *Learning an instrument*, *Learning an instrument and some musical elements*, *Learning musical meaning*, *Learning to communicate musical meaning*, *Learning to express personal meaning*. According to the author the conceptions could be ordered along a dimension from limited to expansive views. Students who experience learning music within the expansive conception are able to focus on more meaningful aspects of music, if the learning environment supports their view.

McLean (2001), carried through a study comprising medical students as subjects. Students on 4 different performance levels as indicated by their results on a mid-year examination comprising Physiology, Biochemistry and Histology were interviewed about their experiences of the first two years of medical studies. A group of co-judges were handed over the relevant interview excerpts and a copy of the Marton et al article from 1993 comprising the 6 conceptions of learning. The results show that there is a correlation between performance level and the frequency of more elaborated conceptions of learning. If performance groups 1 plus 2 and 3 plus 4 respectively were collapsed and compared there was a significant difference as regards proportions for

conceptions *An interpretative process aimed at understanding reality and Learning as change as a person.*

Meyer and Boulton-Lewis (1999) made a psychometric study attempting to validate the RoLI-instrument and suggests that there is a contextual dependency of conceptions of learning described in empirical studies.

Pillay and Boulton-Lewis (2000), attempted to expand the traditional scope generally adopted in studies of conceptions of learning, by considering general and subject-specific conceptions of learning as well as comparing learners who have had at least two years of work experience and those who have come directly from school. The subjects were all students in a Construction Management Course. When the question was formulated in a general way the following categories were found: *Acquiring knowledge and skills, applying knowledge, understanding, self-development, life-long learning.* When a contextualised version of the question about learning was posed the following categories were discerned: *Acquiring knowledge and skills, obtaining grades to degree, applying content to work, understanding content, career/self development.*

Differences were found between students with and without work life experience according to the following: (Proportions for students with work life experience first). *Acquiring knowledge and skills, 36/70 percent, obtaining grades 52/80, applying content to work equal, understanding content 52/26, self/career development 44/36, lifelong learning 48/23 percent.* Some of these results are somewhat unexpected. **(Short completion required).**

Franz et al (1996) conducted an interdisciplinary study comparing students' and lecturers' conceptions of learning in specific learning and teaching contexts. The subjects came from different faculties and schools at the Queensland University of Technology, included in the faculties of Built Environment and Engineering, Health

and Caring and Arts and Science. Data was collected through synergetic focus groups with students and semi-structured interviews with teachers and subjected to a phenomenographic analysis. The analysis revealed seven different conceptions of learning; *Learning as doing what the teacher expects*, meaning that the learning is understood as producing an outcome in correspondence with that of the lecturer, *memorising*, absorbing unit specific content, particularly what is likely to be covered in tests and examinations. Further, *understanding* where the emphasis is on making the information a part of something you can use, *developing professional competence* including the capacity to minimise risk, emphasising performance in real-life practice situations. A fifth conception of learning was *viewing the world from different perspective*. The two last conceptions of learning were *personal change in attitudes beliefs and behaviour*, and *earning as an object of study*. The last conception was found among students in a teacher training programme.

(Short completion required).

Purdie, Hattie & Douglas (1996), investigated differences between Australian and Japanese secondary school students' conceptions of learning and their use of self-regulated learning strategies. Students in their final 3 years of schooling (16-18 -year-olds) from five schools in Australia and five schools in Japan participated in the study. Data were collected through a structured interview format, using the Student Learning Survey, consisting of 10 open-ended questions about students' learning strategies and their conceptions of learning. Nine categories of conceptions of learning were found; *learning as increasing one's knowledge*, which is quantitative in nature and refers to the accumulation of knowledge; *learning as memorising, reproducing and studying*; *learning as a means to an end*, in which knowledge or skills gained are seen important because they can be put to some use; *learning as understanding*, where gaining

meaning is seen as important; *learning as seeing something in a different way*, or thinking differently about something or oneself; *learning as personal fulfilment*, where learning is seen as leading to greater maturity and personal growth; *learning as a duty*, an obligation to one self and to society; *learning as a process not bound by time or context*, in which learning was seen as not only related to school but to everyday contexts; and *learning as developing social competence*, where the focus is on communication and social, interpersonal skills. The comparison between the groups showed that the Australian students had a narrow, school-based view of learning, while the Japanese students view learning in a broader perspective. The Japanese students relate learning not only to what happens at school, they see learning as a life-long experiential process leading to personal fulfilment. In spite of these differences in learning conceptualisations, the strategies used by the students were similar in the two groups. A conception of learning as understanding was associated with a greater total use of learning strategies for both Australian and Japanese students. ???

The task of summarising the available research on the topic is not an easy one but it appears as if most studies have come up with conceptions that to a great extent are embedded in the discourse of formal education. Several studies report findings of conceptions that have the essence of complying with the demands experienced in the subjects' own studies. There are but a few conceptions that imply references to the life world or professional context. This is not surprising since the context-dependent nature of conceptions has been repeatedly emphasised. (C.f. Meyer & Boulton-Lewis, 1999). The students and teachers who have taken part in the studies have in all likelihood associated the interview context with their daily work in formal educational settings. Another observation that can be made is that the main distinction proposed by XX (19XX) between *learning as accumulation* and *learning as transformation* appears to

be applicable to all studies referred to above. There are, however, a few examples of conceptions that on a meta-level may be referred to as *application*. Below is provided an analytical summary of the results of the studies referred to above.

(Insert table 1 about here).

It is worth noticing that conceptions within the meta-category *accumulation* are only found when formal educational settings are referred to, whereas when the life world and professional orientation are explicitly mentioned there are only conceptions belonging to the meta-categories *transformation* and *application*.

Some methodological remarks

Comparison of categorisation and negotiated consensus in all cases where differences were found between the researchers.

In some cases, the subjects expressed different, heterogeneous conceptions in different parts of the same interview. We decided to treat all conceptions expressed by the subjects as equally valid. This means that the number of conceptions elicited can exceed the number of subjects.

To overcome the shortcomings of the procedure of simultaneous (and therefore separate, and inevitably differentiated) interpretation in both countries, we occasionally used a cross-interpretative procedure. The initial outcome spaces elaborated by the Swedish and Polish teams were used as hypothetical structures against which the whole material was re-read. However, we did not aim at a complete unification of the results of interpretation. Our final outcome spaces have been accepted as different in all the aspects that could not be unified in the process of cross-categorisation.

The following presentation will include brief, separate reports and – in the end - a hypothetical interpretation of differences and similarities, as well as some

methodological considerations for using phenomenography as a comparative research methodology.

The empirical study – Sweden

The nature of learning

In the following, the categories of meaning are described separately. In several cases, the answers could be categorised as pertaining to more than one category. To illustrate this, tables that show the distribution of subjects over combinations of categories are provided. The analysis yielded three different categories describing the conceptions of the nature of learning among teachers and students:

Learning as change, Learning as completion and Learning as contextualisation.

In the following, the characteristic traits of the categories are described separately. Excerpts from the interviews illustrate the categories.

Learning as change

Typically, this group of answers describe learning as a process within the individual. It means change of the structure and/or content of existing knowledge; i.e. learning is viewed as the encounter between something new and the learner's previous knowledge. The new knowledge becomes integrated with prior ways of thinking. The respondents emphasise that this integration leads to the establishment of new ways of seeing in themselves, but also to an ability to discern and respect different perspectives in others. Some of the informants describe this as follows:

You get another way of thinking, and you do perhaps not judge other people so often, but rather try to think, like, what is her perspective (S15)

Learning is not that I add new knowledge to old knowledge, but rather that I integrate it with the knowledge I've already had to make it a new, a new change (S16)

When you speak with other people, or read something...you suddenly see it differently ...you begin to change your way of thinking...it becomes kind of qualitatively different if it concerns something I already know a bit about... (T3)

I guess learning is about a kind of qualitative shift in your attitude towards what you're interested in. (T6)

The change of the structure and/or content is described either as change in conceptions of the surrounding world, or as a deeper understanding. Sometimes the change is described as a kind of aha-experience, meaning the sudden grasp or understanding of relationships that illuminate experience or help to solve a problem, leading to a feeling of happiness and satisfaction. The following excerpts illustrate this:

Sometimes you get an aha-experience – oh, is this the way it is, I didn't realise that before – because I had no knowledge about the area. It happens often, I think, that I get an aha-experience that gives me a kick forwards...I realise things. I have not just read it and crammed it, but I have really understood how to think about it. It feels joyful to have understood deep down inside (S8)

I think that learning is foremost that you understand something in a deeper sense...it could be that you learn something completely new, but it could also be that you learn more about something that you learnt a little about previously, that gives you a deeper understanding or awareness in a different way, I guess that is what it means to learn something (S9)

I often think that it is the feeling.. that is connected with some sort of happiness...it is just when you don't understand, this is too difficult, you feel stupid.. and then, suddenly, wow, you understand and it seems so simple, why didn't I get that in the first place, it is really a sense of happiness.. (T4)

Learning as completion

The most distinctive feature of this category is that learning means to acquire an additional contribution to existing knowledge. This additional contribution does not have any impact as regards change of the structure or the nature of the previous knowledge. Typically, the subjects talk about cramming new input or completing unfilled areas when learning. In some cases, the subjects mention the act of completing a structure, learning by adding something new to something already existing.

I think about reading a book, memorising, repeating.. and that is a positive concept for me.. You get enriched by getting to know things ..I have a better capacity now (compared to previously) to deal with a larger input ...(S10)

You hear something and you process it rather quickly.. and then you perhaps get enough insight and knowledge about the topic so that you can ask questions or question things... then I feel that I have come rather far...In other cases you often just receive...and you may think that it sounds strange...but you don't give it any further notice.. you just walk away with what was said.. (S2)

You have learnt something previously and take that as the point of departure...But you add some new material and some new content...that is how I feel I do when learning.. (T12)

Learning as completion could also mean to establish a new, fundamental structure of knowledge. One of the subjects describes this as the creation of structure. It could also mean to renew a system of concepts. The importance of understanding is emphasised. Some informants point at the need for a kind of contemplation, 'you have to carry it with you for a while'.

You have to establish (the knowledge) in your memory...One part is the understanding, to comprehend what they are talking about and that you get the right structure of the new concepts...The other is then to cram it so that you remember (.) You make an effort to arrange the material in structured units.. thereby you get a kind of servo effect...how should I put it...if you pull one end you will get access to all of it.. (T11)

Learning as contextualisation

In this category, the context is so central that it makes up the nature of the learning process. Two aspects stand out as important. Firstly, understanding the context itself is viewed as a prerequisite for learning. This means to know the pragmatic use of the achieved knowledge. In some cases, the profession is the context. This means that learning is to get the tools needed for the forthcoming profession. It also means to exclude things that you cannot utilise. Secondly, learning itself is dependent upon application, it is not until you apply your knowledge that you learn.

Learning is to me to get the tools I need for my forthcoming work, to be able see the relevant things and to sort out things that I don't have any use for. (S1)

We study continuously, but it's when you can apply it right away that you learn. (S6)

It is a great satisfaction when you learn something and you realise that it is something new, that you didn't know before and that it is something that you can apply (S3)

Well, you read a lot and then you have to be able to apply it in some way, that you don't just store it somewhere, but that you practice your knowledge, in my case in lessons. (S5)

A comparison between the two groups reveals some differences between teachers and students. In the student group, the most common conception of the nature of learning is *Learning as contextualisation*. The least common conception is *Learning as change*. The pattern in the teacher group is the reverse, *Learning as change* is the most common conception while *Learning as contextualisation* is the least common. *Learning as completion* is about equally common in both groups (table 2).

(Insert table 2 about here)

Driving forces for learning

In the following, we will describe the teachers' and students' views on the driving forces for learning. The analyses focus on the answers to the question *When do we learn?* Three conceptions were discerned, *Scholarly incentives*, *Social incentives* and *Pragmatic incentives*.

Scholarly incentives

In this category, learning is viewed as an individual project and as part of the individual's personality. The subjects talk about learning as a way of being, a propensity to learn, to investigate and understand the surrounding world. External motivation for learning is subordinated, since learning has a value in itself. Hence, the incentives are intrinsic and learning contains its own motivation. The inclination to learn and the ability to understand are important.

You orient yourself about something and move in a certain direction.. you search in a way, or it is almost like a routine to find out about things.. It is more like learning is a part of or included in the way you are...You act that way and you are like that...(T13)

It has always been important to me to understand things.. I've always, since high school or upper secondary school, hated when you had to learn things by rote, to me it is very important to understand, to deepen my understanding and to use this inclination to understand. (T4)

Social incentives

The important feature of the answers in this category is that social interaction is viewed as the driving force for learning, e.g. the discussion with others, to hear the opinions of others. Learning should take place in a social context for social purposes. Interpersonal interaction is regarded a learning process in itself, not just as an exchange of information. It has a potential for qualitative change. Another way of phrasing the same

idea is that encounters between teachers and students, between students and students, are important to achieve a deeper learning.

When you discuss spontaneously during coffee breaks and you come across someone who is older or has a different viewpoint on things, you realise, OK, that's the way it is...(you learn) a lot when you are together with others, I think, other things than from books.. Learning from books is fundamental, but when you discuss things through and take part of other peoples' standpoints.. that's how you understand what it is all about.. (S8)

When you have people around you with similar needs, or similar perspectives on life it is very stimulating to discuss, you dare to speak up like, this seems strange, how is one supposed to understand this...and you meet a new perspective that you can take on...sometimes you don't, of course...it depends on what it is...discussing with others gives me a lot, it develops my thinking...and I hope I can contribute to the development of their thinking in some way... I believe we need people to exchange thoughts with in order to further develop ourselves... (T5)

Pragmatic incentives

Learning is viewed as preparatory for activity. There is a clear goal-orientation, to see the pragmatic use and utility of the learning. The students are here referring to the pragmatic use within the educational system, e.g. that the assessments affect what is learnt, but also outside the educational system, connected to the forthcoming professional work. The subjects are focussed on becoming able to solve certain kinds of problems, deal with certain kinds of issues, and get access to certain kinds of

professional careers. As one of the subjects expressed it, it is about acquiring methods to be able to work...to be able to apply knowledge in different areas. Learning and knowledge have no aim in themselves, they are rather viewed as functional, referring to life in general, connected to the educational context or the forthcoming professional work. Thus, the exchange value of knowledge is important.

If you want to achieve something, it takes more effort, but if it is really urgent, if I know that I have to know that, or this could be of use for me, of course I can mobilise power to do it.. (S1)

If I think back on my earlier schooling, it felt like you learned only for the moment, but now it feels like I'm learning this to be able to apply it when I have graduated. Now, knowledge leads to something really important that I feel I need to know. (S6)

The relationship between conceptions of the nature of learning and the driving forces for learning

The predominant conception of the driving forces for learning in the teacher group appears to be *Scholarly*, regardless of whether the nature of learning is conceived as change or as completion (Table 3). Striking is also that *Social* driving forces appear to be unimportant, only one teacher hold this conception. Finally, the *Pragmatic* conception appears to be associated with the conception of learning as change.

(Insert table 3 about here)

In the student group, *Scholarly* incentives are associated predominantly with the conception of learning as completion and with learning as contextualisation. *Social*

incentives for learning appear in the student group regardless of conception of learning. *Pragmatic* incentives are also associated with all conceptions of learning, but is less common than the social incentives.

The outcome space shows an overlap between students and teachers as regards conceptions of the nature of learning. This overlap is particularly discernible in the categories *Learning as change* and *Learning as completion*. There is also one category that is idiosyncratic for the students, *Learning as contextualisation*. The latter is characterised by a kind of latency; learning is accomplished through application. This category is closely related to the driving forces for learning. For some students, the application constitutes a driving force, and for other students the application is regarded as a prerequisite for understanding. These students search for understanding, and the application assists them in the process, meaning that the ‘why’ of learning is integrated with the ‘how’ of learning. It is possible that no distinction between the driving forces for learning and the nature of learning itself is made here.

The conception of *Learning as completion* could possibly be a reminiscence from the traditional perspective of knowledge within the educational system that knowledge should be built up step by step. The teachers being more often represented in the category *Learning as change* and less often in the category *Learning as contextualisation*, may indicate that knowledge has a value in itself for the teachers. Teaching is not, however, viewed as an application of knowledge. On the contrary, the application of knowledge is central to the students, probably because they take part in professional educational programmes. There is a potential conflict between teachers and students perspectives in that the students emphasise the relevance for the coming

profession, while teachers hold a more academic conception of the nature of learning and the driving forces for learning.

The empirical study – Poland

Milieu

The very first reading of the Polish material produces an impression that there is a deep structure that informs the conceptions of learning expressed by the subjects. This structure relies on the opposition between “institutional learning’ and “lived experience’. One of the respondents says in quite a typical way:

[...] when we hear the word “to learn’, then in a popular sense it is to go through the books, or like walking with a book around the room and learning by heart for the examination. But to learn is also to gain life experience and all you can call knowledge. (int. 10, student in the humanities)

Other ways of expressing the opposition defined by the Polish subjects can be illustrated as follows:

You can learn not only from books, I mean the dry knowledge; you can also learn the world, learn to understand something [...]

What do you mean by “learning the world’?

Gaining new experience. (int. 7, history student)

When do people learn?

All life, I think.

How do you understand that?

I learn every day, for instance from other people.

What can you learn from others?

Life. (interview 18, chemistry student)

You talked about learning throughout the life. What do you mean by that?

Learning the “book’ knowledge as well, of course. [...] However, in a broader sense, learning throughout the life is learning the world; the world keeps changing.

Especially nowadays, we live in a period when new things are being invented all the time. (int. 7, student, humanities and teacher training)

Learning to me connects with science, examinations... (interview 17, student, humanities and teacher training)

When do we learn?

All the time, [even] during this very conversation. (int.30, science teacher)

When do people learn?

All the time. I mean, I know that when I do something this way or another I will later discover the effects of it. (int.5, student, mathematics)

Some subjects introduced this opposition in the very first words of their interviews. Others referred to it later, either discussing conceptions of learning or these of knowledge (knowledge is often referred to as “lived’ vs. “book’ knowledge – this issue,

however, is not reported in this paper). In some cases, they concentrated just on one of the milieus. Typically, the structure worked as an introduction to analysing the overall meaning of learning. Then, in most cases, the subjects went into details about learning in *institutions* (schools, universities, etc.), which to a large extent was driven by the questions asked during the interviews. The problem of motivation, in the Swedish material referred to as the problem of driving forces of learning¹, usually appeared in later parts of the interviews. When the interviewees speak of driving forces for learning, they usually concentrate on the institutional setting (they learn “for examinations” or “to broaden their horizons”). “Life learning” in this context appears to be an autonomous phenomenon that is not driven by any particular force, or motivation¹. As coincidental, it seems to reside *outside the sphere of purposeful actions*. In short, the *conceptions* of learning were formulated with the opposition of “life” vs. “school” in mind, whereas the “driving forces” were usually defined in relation to institutional learning.

The driving forces identified in the Polish material referring to institutional learning are the following: cognitive, social, pragmatic and developmental incentives. These categories are similar to the ones discerned in Sweden. “Cognitive” can probably be equalled to “scholarly” incentives, “social” and “pragmatic” seem to be identical. The “developmental” motifs, not identified in Sweden, speak to the idea of learning serving the needs of the developing self. The distribution of these motifs looks as follows:

(Insert table 5 about here)

Cognitive incentives are most frequent ones, then follow the social, pragmatic and developmental ones. There is no significant difference between students and teachers in this aspect.

During the cross-interpretative analysis, when both teams tried to adapt their partners' sets of categories to the empirical material, the deep binary structure contrasting life- vs. institutional learning has not been identified in the Swedish sample.

The nature of learning

In a result of the phenomenographic analysis the following set of conceptions of learning was identified in the Polish material:

Learning as instrument, Learning as change, Learning as acquisition and Learning as natural disposition. The distribution of these categories in students and teachers looks as follows:

(Insert table 6 about here)

“Acquisition’ and “instrument’ are visibly more popular concepts in students than they are in teachers. In the following passage the conceptions will be characterised in a more detailed way and illustrated by excerpts from the interviews.

Learning as instrument

The instrumental conception of learning has a twofold structure. On the one hand, it stresses the usefulness of learning results as an important incentive for learning. In this respect, it could be identified as a motif rather than a conception of learning. However, what has been learnt is also seen as an instrument in further actions – both practical (e.g. in real-life situations) and in terms of further learning. In this sense usefulness becomes more than merely a motif, or incentive for learning; it rather constitutes its

very nature. To some extent, this conception resembles the stance of philosophical pragmatism. It can be illustrated (in part paradoxically, through negation) by the following excerpt:

[Learning is] nothing pleasant. It usually means stuffing your head with things that are useless, unless it is something about doing things in practice. Then it can be interesting. If I just have to memorise and I know I will not use it, it is a waste of time [...]

What actually happens when we learn?

When we learn it is like that through that [what we learn] we can learn something else. When I learn something, I can later understand something else. One thing follows another. [...]

When do people learn?

All the time. I mean, I know that when I do something this way or another I will later discover the effects of it [...] I learn different possibilities of acting in different situations.

(int. 5, mathematics and ICT student)

For some respondents that pragmatic (instrumental) aspect of learning is strictly linked to the institutional context: you learn to reproduce knowledge in the institution, for reward, etc.:

Learning the “book knowledge” is for me gaining knowledge that will be demanded on me later. Of course it can also be useful later in life, for instance when I work at school, when I am a teacher, I will be able to transmit the

knowledge that I have learnt to the children, right? Now, however, I learn it just to pass some examination. Just like that. [...]

For others, the pragmatic outcomes of learning are important also in every-day situations:

I will teach history, and it is a kind of knowledge you can presently use, for instance, when you watch a film. I was watching “With Fire and Sword”, and there was this person sitting next to me asking questions, why he did this or why he did that. And then I could tell him all about it, it was from my historical knowledge. So you can use it in contemporary life as well (int. 7, student, history and teacher training)

Some particular cases classified within this conception include those referring to learning as a “social necessity” or a natural “precondition of life”. Here learning is thought of as an instrument of *adaptation* in a broad sociological or even naturalistic meaning (as a condition of survival). It is thought of as an obligation, necessity or even coercion.

What comes to my mind is coercion, necessity; a process that runs throughout the whole life. We can speak of learning, that is education, that runs from a certain age to a certain age, but we can also speak of learning from every day experiences – like when we say that one learns from his own mistakes. (Int. 11, student in education)

What comes to your mind when you hear the words “to learn”?

Fear [laughs]. I don't know what. I always learn for the last minute and I am afraid I will fail. [...]

What kind of process is it?

Spontaneous [laughs]. Forced. [...] Not when you learn life, but when it comes to school... (int. 18, chemistry student)

The “forced” learning in educational settings can be contrasted to “spontaneous” learning in real-life situations, as it is in the second passage, or considered just another aspect of the *necessity to learn* that seems to be a precondition of life. The last two passages illustrate that conception:

Man learns all the time [...] If you ask me why, I then think [of learning] not as of merely one of human activities, but as of a system of adaptation to the world. Man learns all the life. All the time he gains something new. (int. 31, teacher in film studies)

I think that nowadays a situation in which a human being was deprived of a possibility to learn would deprive him of a possibility to live. You would be outcast to the margin of the society if you didn't catch up with the society in terms of basic, elementary knowledge. (int.21, teacher in education)

The perspective of adaptation makes this kind of necessity instrumental: learning becomes an instrument of life.

Learning as change

The category of change is an aggregate of two major subcategories: learning as change *in the subject*, and learning as change *in the structure of knowledge*. Of course, “structure of knowledge’ can be understood as part of the subjective experience as well; however, some respondents clearly pointed to other than merely cognitive results of learning – they included some aspects of meta-cognitive effects, and also pointed to changes in “deeper’ layers of personality. These we decided to refer to as “changes in the subject’:

To learn is to deepen your mental horizons (int. 10, student of the humanities)

People broaden their horizons, look upon the world differently, they broaden their vision, understanding. (int.29, teacher in teacher education)

We broaden our knowledge and skills... What happens? It is hard ... We feel we are getting wiser, we gain new experience, we get richer...

Richer in a spiritual sense?

Yes, yes, spiritual... [...] I feel different, I feel richer and I feel more secure. I know

I will be able to speak myself when I get to a new environment, not just sit quiet...

(No. 20, chemistry student)

The “change in the subject’ sometimes has a deep, almost mystical (“mystagogical’) meaning:

But how do you understand it, what is learning?

[...] it is a possibility to develop, to learn new things about the world, to proceed in a good, proper direction ... [...]

How do you know if the direction is good?

Of course, I make mistakes. But making mistakes, I find some way of mine, some proper way I would like to follow. [...] It is like a flower. You bloom, and you just feel you ... you actually follow something that involves you, and you cannot resist that current. (No. 6, student, Polish philology and teacher training)

The “strictly cognitive’ approach (learning as change in the structure of knowledge) is reflected in the following quotation:

Learning is a process [...] of acquiring new information that adapts to what we already know, and makes all that we know transform, develop, because of that new information; or change through its verification. (int. 13, student in psychology)

In a more metaphorical way, a teacher trainer in mathematics says:

[Learning is] re-arranging all the furniture you have in your brain (int. 27).

Let us note two things: first, that what has been identified as “change in the structure of knowledge’ by the Polish group, would probably be classified as one of the aspects of “completion’ (otherwise almost identical with “acquisition’ described below) in Sweden. Second, that “change’ cannot be clearly illustrated as pertaining to learning taking place in separate *milieus*. It takes place “in the subject’ or “in knowledge’ (subjective or objective), regardless where the learning experiences come from.

Learning as acquisition

The category of learning as acquisition refers to the concept of knowledge as a set of information that is passed from teachers to students. Learners generally portray themselves as “recipients” of externally constructed data. The process may involve personal effort on the part of the learner; however, what is gained in the process of learning appears to be pre-structured by external forces. This conception resembles the Paolo Freire’s “banking concept of education”. However, “acquisition” also refers strongly to *life experience* as a specific kind of lived knowledge. Even though it is not “passed” by anyone in particular, it may be “received” and “collected” by the subject. Both “dry”, academic knowledge and life experience can be acquired, and possibly – retained and utilised in proper circumstances. As acquiring “dry” and “lived” knowledge differ substantially in terms of kind of experience involved, “acquisition” seems to be the most milieu-sensitive conception of learning in this sample. The following quotations exemplify the concept:

What comes to your mind when you hear the words “to learn”?

To learn means to acquire new information, new knowledge. That’s it, I think.

Acquire new information, right? Can you add anything?

You can learn not only from books, the “dry” knowledge I mean, but you can also learn the world, learn to simply understand something. (int. 7, student, history and teacher training)

When I hear the words “to learn”, there comes to my mind apprehension of information, studying my university notes - and also acquiring new life experiences. (int. 9, student, early education)

When do people learn?

When they want to gain some knowledge [...]

Only then?

Well, some probably learn to pass something [examination]

What actually happens when we learn?

[...] We learn some new material, it stays there written in our head, and there we have it [...]

And how do you learn?

I take the book, read, then I may check if I know what I have been learning, if I remember and understand it... (int. 2, student, biology)

In the first and the second example we can see the duality typical of the Polish sample: institutional knowledge and life experience create different, and in many cases perceived as oppositional, *milieus* for learning, even when the very conception of learning is perceived as similar in both contexts. The subjects finds it important that you can acquire “not only” school (“dry”) knowledge but “also” experience, which may imply that school learning is not perceived as “part of life experience” itself, or at least that its specificity makes it a separate *kind* of experience.

“Acquisition” may seem to be a rather passive way of learning (knowledge “is there” and you “get it”). However, there seems to be a difference between the two *milieus* of learning in this respect as well. As long as life experience is often portrayed as coincidental learning, not implying purposeful activity on the part of the subject (the

first of the following excerpts), acquiring knowledge in the institutional (academic) setting demands effort (the second example).

When do people learn?

All life.

All life... All the time, or do we have breaks?

All the time. Even when you sleep. [...] I don't know. When we walk the street we learn all the time, we gain experience [...] Our brain writes down everything we see. (int. 8, humanities student)

When do people learn?

When they are active. Not when they just sit in the lectures and get bored; they learn nothing then. Only when they read notes, compare something, make notes of some papers. Simply, when they are active (int. 4, student, Polish philology – media and publishing)

A specific sub-category of acquisition appears in an interview with a humanities student (int.14). Here “acquisition” in its almost mechanical, “rote” aspect, is meant as a way of *understanding* “*the other*’ *understanding*, in – as it is explained in a further part of the narrative - a deconstructive sense:

What comes to your mind when you hear the words “to learn”?

Reading texts and nothing but that. Reading with an attempt at understanding. [...]

Reading is somebody else’s understanding. It is best to learn by heart, but for the pure pleasure of it, not just to learn, pass the test and forget.

Learning as a natural disposition

The category of learning as a natural (biological) disposition appears scarcely in the sample. One of the respondents says that

[...] Biologically, learning is leaving traces – neuronal connections [...] between cells. [...] As long as electric impulses circulate around these connections, we remember. It is leaving traces in our brains – unlimited possibilities. Billiards of connections, ready to use... (int. 25, biology teacher).

In a way it means that all the differences between various conceptions, driving forces or *milieus* of learning are dismissed in this naturalistic approach – just because learning is not a purely human experience. Whatever the context, in a biological sense learning is “leaving traces” in the neuronal structures of a living organism. However, this naturalistic approach is reflected in some of the “acquisition” narratives – e.g. when people speak of brains “writing down everything we see” (quoted above), or when a student describes her attempts at recalling important information:

I remember... I remember visually. Something is happening inside me [...] When I have to answer questions I recall that sheet of paper, or that graph... (int. 18, science and teacher training student)

Relationship between conceptions of learning

Each individual could express several conceptions of learning. In order to analyse their mutual relations, a correlation coefficient was calculated for all pairs of conceptions expressed in the sample. The following chart presents the results.

(Insert table 7 about here)

As we can see, there is none or weak correlation between the categories, with an exception for the relation between conceptions of learning as “change” and as “acquisition”². The negative correlation (-0,52915) shows that these categories present a moderate tendency to be an either-or choice for the subjects.

Relationship between nature and milieu of learning

As we mentioned before, the opposition between life and institutional contexts creates the basic structure of understanding learning. In the examples quoted above we tried to provide for illustrations of how the same conception can be perceived in both learning environments defined by the subjects. However, this does not mean that milieu strongly *diversifies* conceptions expressed by the subjects. On the contrary, the most frequent case was presenting the same conception in its life and institutional variations. This applies particularly to the conception of learning as acquisition – the subjects spoke of acquiring not only knowledge (“dry”, “bookish” knowledge) but also life experience. The very concept of acquisition is almost the same in both cases, with this difference that “acquiring” information in the institutional setting is not coincidental, it demands a purpose-oriented activity, sometimes it is forced upon the subject. On the other hand, the conception of learning as “change” is usually presented in a context-free way:

learning means that “you change”, whatever the source of these changes is. In other words, learning in these two contexts does not seem to differ in nature; however, it “tastes” differently depending on the context.

(Insert table 8 about here)

Discussion

What do these findings say about the conceptions of learning in the Polish sample? A typical conception of learning can be narrated as follows: Learning is *acquisition*. Depending on the *milieu*, we acquire either systematic knowledge, or life experiences. Learning is either purposeful (sometimes internally, and sometimes externally motivated, even forced on the subject) and active (i.e. demanding effort on the part of the subject) in “school” situations, or accidental, spontaneous, in “life” settings. What is gained in either of these settings can be utilised both in institutional situations (examinations or career) and in personal development (“broader horizons” in life). Quite often, institutional learning is denounced as “rote”, “meaningless”, and valuable merely in pragmatic terms. “Life learning” seems to be more involved in what the subjects perceive as existentially valid knowledge.

Through learning people change both in their cognitive spheres (they change, or re-structure their knowledge, their ‘mind frames’ or mental horizons) and in a spiritual sense (learning gives new meaning to their lives). These changes are reported in univocally positive terms (“broadening”, “growth”, etc.). The (valuable) changes come irrespective *where* learning takes place: when the subjects use the “change” conception of learning they usually do not make the distinction between “life” and “institutions”. You change, wherever your learning takes place. However, the conception of learning

as change correlates negatively with that of acquisition, which means that the subjects have a tendency to speak of learning either in terms of change, or of acquiring knowledge and experience.

Although this picture is quite representative for the sample, there are small differences between teachers and students. First, students more often than teachers see learning as *instrument* in their lives and in the process of schooling. Second, they see it as *acquisition* (of experience or knowledge) more often than teachers do. ‘Change’ is a conception a bit more popular with teachers than with the students. Third, the teachers see learning as change *also* defined in respective *milieus* (life and school), whereas students only perceive it in a decontextualised way, i.e. with no milieu defined.

Comparison

The initial lists of categories proposed by the Swedish and Polish partners were not the same. The differences comprised not only different names for given sets of ideas, but also differently located ‘cuts’ between the semantic fields. Arriving at a relatively compatible set of categorisations demanded therefore a procedure of re-interpretations, based on the following list of objectives:

- to identify the differences in the outcome spaces proposed by the two teams of researchers
- to read through the similarities so that the differences that *cannot be covered* by ‘other’ categorisations are identified
- to possibly ‘harmonise’ the categories that do not leave uncovered material after unification
- to negotiate the acceptable outcome space

The achieved outcome spaces of the Polish and Swedish samples are to some extent complementary. In other words, even if the teams failed to come up with a uniform categorisation, the categories seem to large extent to cover the same (or *almost* the same) array of ideas. However, the lists bear clear traces of different interpretative processes in both research groups – and this is a result of a deliberate decision. We did not want to erase the differences in the frameworks of interpretation as that – as we realised during the research – would eventually erase some of the differences visible in the empirical material itself. In other words, some differences are visible only through different glasses.

To briefly compare the achieved results, let us recall that:

Both Swedish and Polish teams discerned the conception of learning as change. In the Polish sample this conception has been divided into two subcategories - change in the structure of knowledge (identical with the Swedish one) and change in the subject. The division is similar to the one identified in Sweden (*change in conceptions of the surrounding world, or as a deeper understanding*). However, in the Polish sample there was an example of a “mystical”, holistic understanding of learning as deep spiritual changes involving the whole of the subject, which clearly goes beyond the issue of understanding.

The Swedish conception of learning as completion is almost identical with the Polish one of learning as acquisition – even the wording is very close in both analyses. In the Swedish analysis, to learn is *to acquire an additional contribution to existing knowledge*. However, here “completion’ involves establishing new structures of knowledge; such cases were identified with the conception of learning as change by the

Polish team. One more difference is strikingly visible here: speaking of learning in terms of acquisition, Polish subjects clearly differentiated between *milieus* of institutional learning and real-life situations. This difference did not occur in Sweden. The Swedish idea of “contextualisation” is almost identical with the Polish conception of learning as “instrument”. Both stress the pragmatic outcomes and contexts of learning. However, in Poland, this conception involves cases of considering learning to be in a broad sense “a social necessity”, or even “a precondition of life”, not reported in Sweden. Probably this sub-category strongly relates to the idea of learning in real-life situations, not distinguishable in the Swedish sample.

The cases listed above have “resisted” the attempts to inclusion in the process of cross-interpretation, where the teams tried to adapt their partners’ outcome spaces as matrices of interpretation to their own material. The similarities and the differences seem therefore to be fairly well identified, and they seem to speak to deeper layers of “cultural minds” in the two countries. Especially striking seems to be the division between “life” and “school” learning in Poland, absent in the Swedish material. On the one hand, it might refer to some features of schooling in both countries (more pragmatic in Sweden, more traditionally driven by *elite* culture in Poland). Perhaps this is why institutional learning in Poland may be perceived as remote from every-day experiences. On the other, the duality issue may also reflect different historical experiences of the two cultures. At the risk of stereotyping, we might say that we have a “reconciliatory” political history in Sweden³ and “oppositional” history in Poland. In the first case social experience tends to be “negotiated”, in the second constructed in opposition to dominant discourses. However careful, the procedure of analysis cannot guarantee that we could “dig through” the structures imposed by the teams of

researchers in the process of interpretation to the “genuine” (objective) cultural difference expressed by the subjects. What we face here is, quite contrary, an *interplay of two hermeneutics* in the research performed in each of the countries. The first readings of the material provided for some pre-conceptions that structured further investigation. We have found them relatively persistent, though not impossible to change or abandon in the process of further reading. This hermeneutical process resulted in outcome spaces that were consequently subject to cross-cultural interpretation. In that process, it was not only the conceptions *found* in our subjects, but also our own understanding that came into critical scrutiny. Thus a second hermeneutic came into play, that of mutual interpretation of the process of reading national samples’ data. No surprisingly, we have found our own interpretations to be grounded in some preconceptions shared by us with the subjects.

What does it mean in terms of the validity of the research? One could question the whole procedure on the grounds of lacking a common measure for comparative analysis. That would be fairly easy to achieve had we used a more quantitative approach. However, if we consider phenomenography (and its results) as part of a broader interpretative process, the whole procedure – including the cross-cultural interpretation - may be looked upon as a hermeneutic process. Then the interpreters loose their privileged status, and the claims to, as well as demand for objectivity can be deferred, or at least postponed to the stage of meta-interpretation (probably *ad infinitum*). What we in a way gain instead is a kind of second-level empirical data: the outcome spaces and the process of their construction can themselves be interpreted as constructions characteristic of particular cultures of understanding learning. In other words, the differences identified in the approach of the Swedish and Polish teams are, therefore, to no lesser extent cultural differences than the ones sought for in the “raw”

interview material. If we wanted to comprehend what constitutes these differences, we would have to trace the whole process of interpretation conducted by both teams and concentrate on the resonance that particular enunciations caused in their interpreters. That resonance could, perhaps, draw us closer to the layers of pre-conceptions that make cultures intelligible (that is, interpretable) from within - and so difficult to translate.

Having scrutinised the results of the empirical study it may be worth returning to the summary and analysis of the previous research in the area. The results of the present study fit well into the system of meta-categories and contexts that were proposed in table 1. We would, however, like to question the extent to which the categories applied are feasible and have a sufficient degree of precision. Firstly, the meta-category *accumulation* is lacking in precision in that everything may be accumulated, including understanding, preparing for work and so on. We would rather propose *addition* for the meta-category that summarises conceptions of learning not pertaining to change. Secondly, *transformation* seems to be a good label for a meta-category that implies change. Thirdly, we would like to suggest *transposition* for conceptions of learning that refer to changes between contexts. The reason is that the use of *application* implies a change between theoretical or “bookish” contexts and more practical or material ones. In our own empirical material there are examples where subjects have mentioned for instance writing as a favourable context for learning. When movements between contexts have been mentioned these movements have in themselves been described as learning. This fact may motivate the establishment of *transposition* as a separate meta-category of learning. One may ask why transposition has to be discriminated from transformation. In the jargon of phenomenography a way of experiencing something is constituted by which aspects of a phenomenon that are discerned from the environment,

the *external horizon*, and how these aspects are internally related to each other, the *internal horizon*. When a transposition takes place the phenomenon in question has to be discerned from a new external horizon. Even if the aspects of the phenomenon discerned remain the same and their internal relationships are unaffected by the change of context, it is obvious that the mere context they are discerned from affects the flavour of how something is experienced. Furthermore, it may be hypothesised that not only the phenomenon but also the context from which it is discerned may be experienced in another way than before through instances of learning as transposition. This statement does, however, remain to be further examined.

Endnotes.

¹ “The Swedish model” of welfare state that emerged in the 30s was based – as S.Lindbald and E.Wallin put it – on “collaboration between capital and labour”, and is characterised by such concepts as “centralism, universalism, social engineering, and consensus”. S.Lindblad, E.Wallin: On transitions of power, democracy and education in Sweden. *Journal of Curriculum Studies*, vol.25, No.1, January-February 1993.

² The opposition between “life” and “institutional” learning appears in 24 out of 32 interviews collected in Poland. Of that number, in 14 cases the respondents do not mention any motifs of learning in “life” situations, in 6 cases they clearly state that “life” learning is coincidental, in two interviews cognitive motifs are expressed, in one – pragmatic ones, and in another one a person speaks of “learning from her own mistakes”, which can roughly be identified as a pragmatic motif as well. All in all, 20 out of 24 narratives about “life” learning do not refer to “driving forces” at all.

³ We often had an impression that the Piagetian categories of “assimilation” and “accommodation” could easily replace the ones of “acquisition” and “change”, especially in terms of “changes in the structure of knowledge”. However, the ideas of learning causing changes “in the subject” (“you bloom”, for instance), seem to go beyond the cognitive perspective of Jean Piaget’s theory

References

Bruce, C. & Gerber, R.: (1995). 'Towards university lecturers' conceptions of student learning'. *Higher Education*, 29. 443-458.

Eklund-Myrskog, G.: (1998). 'Students' conceptions of learning in different educational contexts', *Higher Education*, 35, 299-316.

Franz, J., Ferreira, L., Loh, H., Pendergast, D., Service, M., Stormont, D., Taylor, L., Thambiratnam, D. & Williamsson, B. (1996). Students' and lecturers' conceptions of learning in context: An interdisciplinary study. *Teaching in Higher Education*, 1, 3, 325-340.

Lindblad, S. & Wallin, E.: (1993). On transitions of power, democracy and education in Sweden. *Journal of Curriculum Studies*, Vol.25, No.1.

Lonka, K., & Lindblom-Ylänne, S. (1996). 'Epistemologies, conceptions of learning, and study practices in medicine and psychology'. *Higher Education*, 31: 5-24.

Marton, F., Watkins, D., & Tang, C. (1993). 'Discontinuities and continuities in the experience of learning: An interview study of high-school students in Hong Kong'. *Learning and Instruction*,

McLean, M. (2001). Can we Relate Conceptions of Learning to Students' Academic Achievement? *Teaching in Higher Education*, 6, 3, 399-413.

Meyer, J.H.F. & Boulton-Lewis, G.M. (1999). On the operationalisation of Conceptions of Learning in Higher Education and Their Association with Students' Knowledge and Experiences of Their Learning. *Higher Education Research & Development*, 18, 3, 289-302.

Pillay, H. & Boulton-Lewis, G. (2000). Variations in Conceptions of Learning in Construction Technology: implications for learning. *Journal of Education and Work*, 13, 2, 163-181.

Prosser, M., Trigwell, K. & Taylor, P.: (1994). 'A phenomenographic study of academics' conceptions of science learning and teaching'. *Learning and Instruction*, 4, 217-231

Purdie, N., Hattie, J. & Douglas, G. (1996). Student Conceptions of Learning and Their Use of Self-Regulated Learning Strategies: A Cross-Cultural Comparison.

Reid, A. (2001). Variation in the Ways that Instrumental and Vocal Students Experience Learning Music. *Music Education Research*, 3, 1, 25-40.

Wisker, G., Tiley, J., Watkins, M., Waller, S., Thomas, J. & Wisker, A. (2001). Discipline-Based Research into Student Learning in English, Law, Social Work, Computer Skills for Linguists, Women's Studies, Creative Writing: How Can it Inform our Teaching? *Innovations in Education and Teaching International*, 38, 2, 183-202.

Table 1. Analytical summary of empirical studies of conceptions of learning

Contexts	Meta-categories of conceptions of learning		
Formal educational orientation	<p>Accumulation</p> <p>Increase in knowledge Memorising Remembering Acquisition Acquiring knowledge through the use of study skills Accumulating more information to satisfy external demands, Acquiring concepts to satisfy external demands Acquiring concepts to satisfy internal demands Intake of knowledge Learning an instrument Learning an instrument and some musical elements Acquiring knowledge and skills Acquiring knowledge and skills Obtaining grades to degree Doing what the teacher expects Reproducing and studying A means to an end</p>	<p>Transformation</p> <p>Abstraction of meaning Change as a person Understanding Getting a new perspective Forming a conception of one's own The development of thinking skills and the ability to reason Changing personal attitudes, beliefs or behaviours in responding to different phenomena Conceptual development to satisfy internal demand Conceptual change to satisfy internal demands Constructivist Learning musical meaning Understanding content</p>	<p>Application</p> <p>Applying knowledge based on understanding Applying knowledge based on knowing how to do Absorption of new knowledge and being able to explain and apply it Communicating musical meaning Applying knowledge A participative pedagogic experience</p>
Life world orientation		<p>An interpretative process aimed at understanding reality Self-development Life-long learning Viewing the world from different perspective Personal change in attitudes beliefs and behaviour, Personal fulfilment A duty A process not bound by time or context</p>	<p>Expressing personal meaning Developing social competence</p>
Professional orientation		<p>Developing the competencies of beginning professionals Career/self development</p>	<p>Applying content to work</p>

'earning as an object of study

Table 2. *The nature of learning. Students and teachers, Swedish sample*

	Learning as change	Learning as completion	Learning as contextualisation
<i>Students</i>	5	8	11
<i>Teachers</i>	11	7	1
<i>Total</i>	16	15	12

Table 3. *The relationship between conceptions of learning and driving forces for learning. Teachers, Swedish sample*

	Learning as change	Learning as completion	Learning as contextualisation
<i>Scholarly</i>	7	5	0
<i>Social</i>	1	0	0
<i>Pragmatic</i>	5	2	1
<i>Total</i>	13	7	1

Table 4. *The relationship between conceptions of learning and driving forces for learning. Students, Swedish sample*

	Learning as change	Learning as completion	Learning as contextualisation
<i>Scholarly</i>	3	5	6
<i>Social</i>	5	4	4
<i>Pragmatic</i>	2	2	3
<i>Total</i>	10	11	13

Table 5. *Driving forces for learning, Students and teachers, Polish sample*

	Cognitive	Social	Pragmatic	Developmental
<i>Students</i>	8	6	5	2
<i>Teachers</i>	9	5	4	3
<i>Total</i>	17	11	9	5

Table 6. Conceptions of learning in students and teachers, Polish sample

	Instrument	Change	Acquisition	Natural disposition
<i>Students</i>	7	7	18	0
<i>Teachers</i>	3	9	7	3
<i>Total</i>	10	16	25	3

Table 7: Correlation between conceptions of learning – Polish sample

	Instrument	Change	Acquisition	Natural Disposition
Instrument	X	X	X	X
Change	0,13484	X	X	X
Acquisition	0,193666	-0,52915	X	X
Natural Disposition	0,245758	0,107211	-0,08915	X

Table 8. Relationship between the milieu and conceptions of learning

Milieu Conception	<i>Life</i>			<i>Institutions</i>			<i>No milieu defined</i>		
	Stud	Teach	All	Stud	Teach	All	Stud	Teach	All
<i>Instrument</i>	6	2	8	3	1	4	0	0	0
<i>Change</i>	0	2	2	0	3	3	7	4	11
<i>Acquisition</i>	10	5	15	14	7	21	2	2	4
<i>Natural Disposition</i>	0	1	1	0	0	0	0	2	2

(Attn.: The sums do not equal the ones in Table 5. The same conception could be expressed as relevant to both milieus, and then calculated separately).