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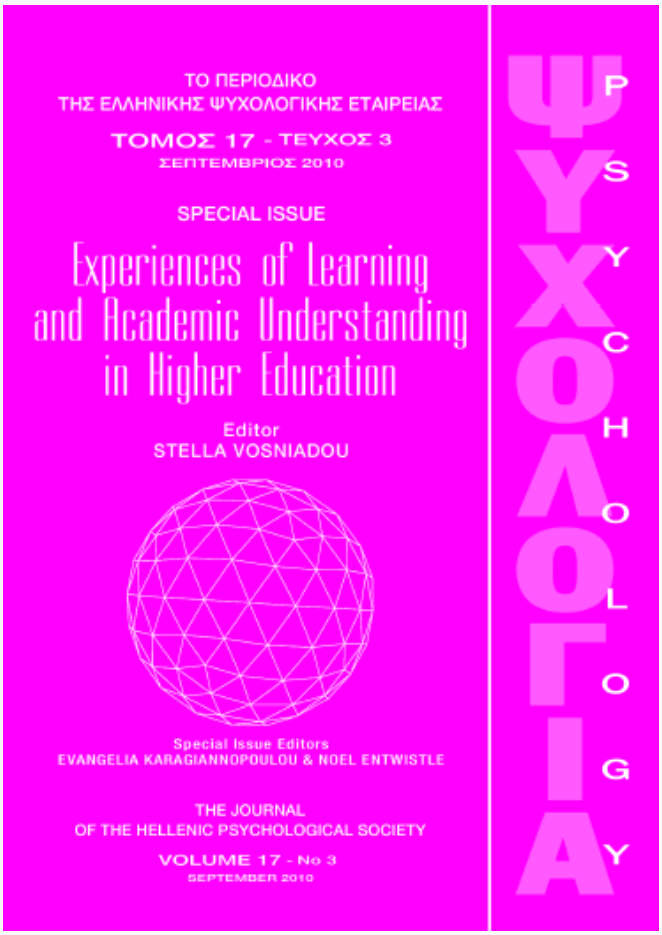

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Words and deeds: A psychological perspective on the active nature of learning and understanding in higher education

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ABSTRACT

This paper addresses the question of how it comes about that a student who has given plenty of indication that he can understand work in higher education nevertheless can feel that he has failed to understand a sizable chunk of work that others have managed successfully. It follows a line of thought developed during the author's own teaching and research experience with young children and with tutors of students in further and higher education, concerning variation in understanding what is to be learned. It combines a prior interest in Pask's conversation theory of learning with appreciation of the socio-cultural shaping of learning practices as expressed in such work as that of Säljö. Pask's work is explored in terms of its helpfulness in examining the nature of success and difficulty in learning under tutorial instruction, in particular in pointing to the importance of defining those aspects of what might be called the architecture of a learning conversation that are essential for the growth of understanding. It calls on consideration of understanding as a process towards, and achievement of, agreement between learner and tutor about the procedures of expressing and explaining the conceptualisation of a topic in a knowledge domain. This leads to the need for recognition of the way practices in the acquisition and transmission of knowledge vary across different subject fields. Säljö's work is particularly illuminating with its emphasis on the ways cultural practices as language impregnate activities, and shape the substance and nature of learning. The route to answering the original question is seen as suggesting a set of possibilities that provide challenge and guidance for the conduct and understanding of learning and teaching in higher education.

Key words: Incomplete understanding, Problem topics, Working conditions for understanding, On-task learning engagement, Learning conversations, Grounded language.

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1. Introduction

Recent attempts to increase student access to higher education in the U.K. have raised questions about the nature and success of teaching and learning in universities, with consequent attention to staffing and material resources, curricula, and modes of assessment of learning. But something is missing in the approaches of national and university government to the problems of provision. It is the problem of actually promoting learning as distinct from making opportunities available. It is not missing by accident. It is missing either because students are judged to be able to make the most of opportunity without much help, or because it is excluded by policies that adopt an industrial model of provision. This model sees the university experience as a form of processing that yields a qualified graduate as a marketable product (almost, but not quite yet, with a sell-by date), while the university teacher is a cog in the machine of delivery of the raw materials to be added to those constituting the original student. The limitations of the model with regard to promoting learning are made apparent as soon as a student says, "I got a degree but there were chunks of that stuff in the second term that I didn't understand." He had the opportunity. He attended the course, did the required coursework, and received tutorial feedback. Some of his colleagues did understand. Why didn't he? And did his difficulty affect his confidence or understanding in later work? The award of a degree, which simply tells us that he sufficiently satisfied the examiners, says nothing about learning difficulties which were never resolved.

Nor do students' responses to questionnaires about the quality of the teaching they experience, as for example that used by the Higher Education Funding Council for England. It must be said that many appreciative remarks are made about teaching but very little is asked or said that would point to how particular learning difficulties have been encountered and how they have or have not been resolved. While there is less reported satisfaction with assessment and feedback this is expressed at a fairly general level, often about procedure rather than content, which gives little guidance to tutors or institutions in their efforts to meet the need for learning support. It often seems that students are aware that they need something more but cannot quite say what it is. Maybe they need more help to pin down their difficulties and resolve them. Work by Hounsell & Hounsell (2007) which explored how feedback fitted into the overall learning environment of students on three different courses found that the least satisfactory aspect of feedback and assessment was providing "help to clarify things I hadn't fully understood". Clearly there is a problem of learning that invites attention and that cannot simply be attributed to any hypothetical psychological shortcoming in the student if he has progressed so far in his studies, yet met with difficulty in a particular chunk of work. How might we look at the problem of incomplete understanding? Can we build on what we know already from research into teaching and learning in higher education?

Rather than attempt my own version of what has been done in this field I refer the reader to the excellent summary by Entwistle (2007), which opens up a wide range of work undertaken in the last quarter century. However it is not easy to locate work which bears on my question. Much work has explored the ways different contextual variables affect learning and teaching, whilst a considerable body has pursued questions of students' approaches to learning, both in general and in particular subject fields. Although very little seems to address students' actual difficulties and how they are overcome, Perkins (2007) raises and illustrates the kind of question I am trying to grapple with. He points to work, especially in science subjects, which identifies and analyses particularly difficult points in learning in order to try to improve teaching. This seems to me to suggest the need for a general theory of learning engagements which require learner and tutor working together on some specified learning goal, that goal being a chunk of knowledge or skill that is selected as meaningful and to be taught in the context of formal educational provision. Most psychological theorising on learning has been reductionist in nature, trivialising what is to be learned, and is not helpful, but one line of research and thinking

seems to me to have interesting potential. I refer to Gordon Pask's work that led him to formulate his "Conversation Theory" (Pask, 1975a, 1975b, 1976). But before I elaborate on what it is in his theory that I find so interesting I should like to indicate why it attracted me in the first place.

2. Learners at work – understanding what they are doing

Some 30 years ago I spent the best part of a decade exploring young children's learning to read in school – not what they could or could not do after any particular method of teaching, but how they went about attempting to read in the context of whatever method of instruction they encountered. I had no intention of comparing instructional methods, but my aim was to explore learning, especially children's understanding and valuing of what they were doing and the strategies and procedures they adopted to try to meet what they thought they were being asked to do (Francis, 1977, 1982). Their individuality as learners and the range of their strategic behaviour helped me to consider learning as discovering and choosing between ways of dealing with challenge in pursuit of a goal. Others have reported interesting strategic behaviour in young children's learning. I found a report of adaptation of strategy under different modes of instruction (Barr, 1974) and, more recently, of varied and individual discovery and adoption of sensible strategies in the early stages of work with numbers and literacy (Siegler, 1991, 1998).

But seeing learning in this light also proved to be relevant in the case of older learners. On becoming acquainted with some of my work on individuality in learning, the head of an organisation concerned with the further education of near-adult and adult students asked me to try an experimental course of work with teachers of such students with special educational needs. The aim was to try to facilitate learning, not by applying any theory, nor by exploring ways of teaching, but by supporting students on task to help them explore their understanding of what they were attempting and their available strategies of coping. This implied a double level of work, my own with the teachers learning to help their students and theirs with the actual work with students.

It was apparent from the start that the focus on individuality was both appealing and threatening. It was appealing because the teachers cared for their students and the idea of better understanding their individual work efforts as learners was attractive, but it was threatening because it was not clear how the effort to learn more of individuals at work was going to fit into the demands of coping with care of the class as a whole. To a large extent teachers had been expecting students to respond with varying degrees of success or failure to tasks where they had been told or shown what to do. But understanding just what they tried to do, and why, was uncharted territory. After a term of trying to fill in this landscape with specific selected instances of students having difficulty with a task, and discussing with their fellow teachers their findings and consequent courses of action, the teachers on the course were rewarded. They had evidence of more student success with more on-task enjoyment and perseverance, and they felt greater personal confidence in their own work and in their ability to make evidence-backed cases for appropriate teaching and resources.

In effect, words and deeds were being used in a different way. It was no longer a case of what tutor said leading to what student did (or did not do); but of both tutor and student working together at well-judged moments, and being engaged in language and actions that pressed towards finding coping strategies by trying to understand why things happened the way they did. In the event enough interesting and rewarding learning engagements were recorded to convince me that the course had been a useful step in learning about learning, with the payoff of more interest and enthusiasm for all involved (Francis, 1988). This takes me back to Pask, for it was while I was working on the topic of individuality in learning that I came across his work, which, it seems to me, is well-suited for consideration for relevance to learning in higher education. What I have been referring to as an on task learning engagement

seems to me to be a version of what Pask called a learning conversation – hence "Conversation Theory". Can understanding his theory help me to probe my question of why my hypothetical student had failed to understand some of the work on his course?

3. Pask's Conversation Theory and the problem of understanding

What sort of a theory did Pask develop? It is not a theory of brain processes, though it builds on such concepts of human activity as attention, memory and thought. It is not a theory of teaching as cause and learning as effect. Nor is it a theory of learning abilities conceptually detached from what is being learned. Instead it is a descriptive theory of learning systems, building from the simple structure of action with feedback to the complex system required to account for human learning. It attempts to specify the minimal conditions that must apply if learning, seen as the development or evolution of understanding of new conceptual relationships, can be claimed to have occurred. It can address the specific problem of a learner being unable to provide satisfactory answers in response to "what", "how" and "why" questions. It therefore immediately recommends itself in relation to questions of feedback and assessment, and also has relevance for students' satisfaction with their own learning. Since Pask chose to focus on learning as developing a process of thought or action that solves a problem (topic) in a domain of related topics, and does so under conditions of supportive tutoring, his work is relevant to all sectors of formal educational systems. How that relevance works out depends on how identification and analysis of learning conversations is found to be useful in relation to curriculum goals and teaching practices in different institutions and fields of learning.

The aspect of Pask's theorising of most interest here was based on experimental observational work using carefully devised machine-based learning systems and tasks in order to focus as clearly as possible on the essentials of a learning/teaching engagement where the learner could not solve a problem without help (i.e. could not successfully act as their own tutor). Extraneous activity and interruption were stripped off, and necessary requirements for observing successful learning were laid bare. All engagement on task was to be reported or represented in such a way as to maximise the opportunity to observe what went on. Tutor and learner contracted to act as the experiment required, working until they could agree on demonstrating and explaining a satisfactory solution to the problem. This entailed requiring the learner to show or tell the steps (thoughts and actions) taken in addressing and attempting to solve the problem, prompted by appropriate questioning (sometimes with cues) from the tutor or other learning support. Each experimental learning task was constructed to provide a problem and adequate variation for working on it without boredom and for pursuing a solution without distraction within the problem. The topic language and that of communication between the learner and the tutor (whether human or machine, or other media) were suited to the learner and tutor for the purpose of the intended learning. Ingenious ways of minimising uncertainty and misunderstanding in the observation and reporting of learning engagements were developed. Thus Pask sought to maintain a focus on normative learning, but to take special care to control the observations involved in studying it. In this way he aimed to establish a framework of minimum requirements for it to be said that a learner had gained a new relational understanding within a conceptual domain. Such a framework would specify the essence of a learning conversation.

The minimal structure of a learning conversation

Pask's experimental work required four roles for the execution of a learning conversation; the experimenter who set the tasks and controlled the conditions of the work; the observer who reported what he saw to the experimenter, the tutor who interacted with the learner under instructions laid down by the experimenter; and the learner. In the case of a non-experimental conversation within formal education the roles of observer and

experimenter would be partly undertaken, or reflected, in the roles of examiner and curriculum designer. Whilst aware of their significance I shall leave them out of the following outline, but it will be obvious that much of the roles of experimenter and observer falls to the tutor. We have, then, to consider two persons and a topic as the minimum elements of a learning conversation. Our question is what did Pask regard as the essential aspects of that structure and how did he portray their relationship in action.

It is at this point that describing his work becomes difficult, for either I have to invoke the terminology and diagrammatic conventions of cybernetic theorising in which most of his work on machine-based learning is expressed or I have to make a best shot within the terminology of natural language. Pask did insert friendly explanations from time to time, but I would have been greatly helped had he provided more. Given the constraints of article length and probable audience appreciation I have to adopt the second course, but with some trepidation. I have been heartened, however, by a paper by Ogborn & Johnson (1984) which provides a useful exposition.

In some ways what is meant by topic and domain perhaps present most difficulty, since their very generality in the theory demands spelling out in practice, and even in helping to understand the theory. Treating them as the objects of learning and understanding Pask spoke of topics as related elements in knowledge domains, and examples were given of the entailment structures involved, but to the non-cyberneticist these are obscure. From the natural language perspective and in the educational context one can say that such relationships lie in the hands of subject experts. They are rooted in knowledge construction within subject fields, and the responsibility for defining a particular goal for student learning lies with tutors who depend on each other and on subject experts to help them select wisely. It is to be expected that if they attempt to develop learning conversations with the Pask architectural structure they will obtain feedback that helps further delineation of topics. Let us then take a close look at how learner and tutor fitted into a learning conversation structure where the goal is conceptualisation of a topic relation within a domain.

The structure, as a system, required building on conceptualisation in the target domain, and did so at two levels. At the first the learner explored the effects of different known practical or conceptual procedures already known to them as effective in conceptual problem solving. They could also ask the tutor for demonstration of some aspect of what might be done. They could be prompted by the tutor to attend to any aspect of a topic or procedure or directed to act in a particular way. They were required to give descriptions of the procedures (steps in thinking and doing) that they used and were asked what had happened as a consequence of using them. The prompting structure was "Tell me..." and "Show me...". The goal was to establish a base for modifying existing procedures or finding a new one. With adequate cues and questions the tutor was able to decide whether the learner's grasp of procedures and topic was sufficient (sufficiently like his own) for new learning to follow. In order for the learner to establish agreement it would in theory be necessary for them to question the tutor for their corresponding descriptions. Then a further cycle of action and feedback was needed.

At this second level novel and modified procedures, selected and adapted in the light of the first level feedback, were tested for their own feedback which allowed a decision to be made about which procedure best yielded a justifiable concept relation (or solution to the learning problem). The first level of work was a necessary underpinning of the second, though in the actual exchange of question and description there could be overlap with work at the second level. At the second level well-directed procedure modification moved closer to establishing what counted as leading to a satisfactory solution to the problem of conceptualising the topic relation. Again the tutor's cues and commands directed the learner, and again they were required to provide descriptions, this time of the new procedures and their feedback. At this level questioning took the form of "How does that come about?" or "Why does it work like that?". The goal was an

explanatory conceptualisation of the topic. Again the tutor would deem it to be achieved when it was sufficiently like his own, and the learner could be satisfied by questioning the tutor that their explanations matched; and at that stage the agreement was taken to indicate understanding of the topic relation.

It might have been that the nature or complexity of the topic relation to be discovered was such that further work was needed or that the two levels were temporally interwoven, but for adequate conceptualisation at least two levels were required. This, therefore, was regarded by Pask as a minimal necessary structure for a learning conversation, and as a possible definition of attaining understanding.

4. The significance of Pask's theory for student understanding in higher education

As a result of his experimental work Pask's depiction of a learning conversation addressed the experience of the kind of conceptualisation required in learning in an educational context. Such learning could only be said to have been achieved when the processes of conceptualisation involved in working towards new knowledge could be satisfactorily demonstrated and good reason could be given for any preferred outcome. Thus a learning conversation entailed agreement between tutor and learner to engage in exploratory work that led to their mutual satisfaction that the desired learning had been achieved. Agreement on demonstration and explanation of their working might be said to indicate that the learner had understood the new subject matter, the student feeling a sense of having really grasped it and the tutor feeling that the student was in a good position to move on. In passing it might be noted that whilst student learning was the primary goal of a learning conversation there might be additional learning on the part of the tutor, both within the subject matter and with regard to tutorial skill. It might also be noted that nothing was said in the theory about the validity of the understanding claimed through mutual satisfaction, but in educational contexts the tutor is normally guiding the learner to an externally approved understanding.

Two objections might be made to taking Pask's theory of minimal requirements seriously in educational contexts. A first objection might be that the theory reduces to common sense, so why promote it? I might have some sympathy with this if it were not for two points. If what is meant by common sense is that it can be expressed in natural language about teaching and learning, and not only in the formal systems of cybernetics, then that is not an adequate reason for not giving it thoughtful attention. And common sense it may be, but is that sense grasped fully enough? The critical issue is not what we say might be done better, nor what counts as useful provision to meet learning goals among the several courses of action we might adopt. It is what is at risk if an essential feature is not to be found. A second objection is that there is simply insufficient time to pay such detailed attention to student learning. To this it might again be said that it is important to know the price of not providing conditions for adequate understanding, but it might also be pointed out that the theoretical structure of a learning conversation was also applied by Pask to conditions of learning where a human tutor was not present. I refer to machine tutoring, to self-tutoring, and to the constant refurbishing of learning that constitutes memory. The absolute necessity of the last two, together with the time they take up in education, suggests there may be more to consider than the objection allows. It might also be the case that being guided by the theory will pay off more in certain contexts than others. I have in mind the process of tutor training and, as indicated above, those points in learning where conceptual understanding proves to be particularly difficult.

Any approach to considering use of Pask's work in relation to formal education would necessarily have to recognise that what he stripped off and set up for his observational and experimental purposes could not be so disposed of in normal learning and teaching. There is a good deal of interference and fuzziness in students' encounters with new learning, even in one-to-one and small group work, and especially

in large class contexts. In addition it should not be thought that all the work expected of students is of the conceptual learning kind explored by Pask, nor of the kind of difficulty that leaves the student unable to tackle it without intensive tutorial help. Therefore judgment of how his work might be helpful has to be made judiciously and selectively. It is possible that acknowledgment of the minimal structure in the general "conversational" nature of learning and teaching might lead to consideration of ways of increasing the probability of greater general success. But it may be more important that attention be given to known problems of failure or difficulty. Where a student or tutor realises that a particular, and perhaps crucial, step in learning has not been achieved then a significant immediate remedy or future treatment of that topic might result from attention to the question of how far essential learning conditions had not been met. I have in mind not only my hypothetical student, for whom a major chunk of learning may have been threatened by missing the learning of a particular conceptual relation within a domain, but also those students and others like them whose learning has been reported in the research literature as being particularly challenged by certain problem topics. Perkins (2007) in the work referred to above draws on such work and gives a very clear account of the challenge to tutors. It appears that where there are known problem spots the required conceptualisation seems to defy student expectations from experience, especially in fields of mechanics and physics. If it is possible that Pask's work may be helpful in some ways in considering any of these cases, let us examine its potential utility in more detail by examining the requirements he found necessary for the success of an appropriately structured learning conversation.

The learning conversation contract

First, the requirement of a learning contract has implications for practice in higher education, even where a strict learning conversation is neither feasible nor even perhaps desirable. The learner's side of the contract, namely to behave strictly in accordance with tutorial guidance, demands that any previous expectation about learning might be over-ridden. The importance of this is revealed in the Hounsell study referred to above, where students reported the novelty of tutorial guidance that encouraged them to think through questioning and evaluation of possibilities. Illustrations suggested that this might have been more evident in practical work where action on material substance was brought up against language about it – deeds in the material world underpinning the syntax and semantics of the functions of words. Given that changes in instruction and mode of assessment in schooling in the UK appear to have influenced student expectations of higher education in the direction of more memorising for later unevaluated reproduction (Hearn, 2008) students may need to be persuaded of the nature and importance of evaluative thinking in advanced learning and so to expect to engage in questioning knowledge demonstration whether it comes from tutors in their various roles, from the written word in its different forms, or from practical work of different kinds. The goal contract is a commitment to learning through actions on words and deeds – a thrust towards understanding.

What of the tutor's contractual commitment in a learning conversation? Since learning conversations are characterised by goals of attaining new conceptualisations in a subject domain it is important to identify where they might lie within an overall contract to teach a particular course to a given number of students in a given time. Assuming that an appropriate goal and its positioning within other aspects of the course have been determined then a Pask type of learning conversation contract could come into play. This would mean that whatever the detail of the tutorial input (Pask explored variations) the necessary aspects are that at least both levels of a minimal learning conversational structure must be engaged, and that at both levels the tutor must lead the learner to find their way to an appropriate solution to a conceptual problem. Thus in those situations where they deem a Pask conversation is indicated they are committed <u>not</u> to present a solution and back it up with selected support in the manner often adopted in class teaching for

that in no way provokes or guarantees firmly based effort on the part of the learner. It may simply suggest attempted memorising without working the problem through – a strategy that yields neither good memorising nor good explanatory competence.

The full minimal structure of a learning conversation is not only a requirement for conceptual learning; it also spells out the conditions for adequate ongoing feedback to the learner and for assurance to the tutor that the required learning has actually taken place. It therefore gives us guidance about the practices of feedback and assessment in higher education.

Because resource limitations generally limit tutorial engagement with student learning and often separate attempted learning from feedback and assessment, not allowing ongoing close interrogation, it is here that the consequences of an absence of a tight tutorial contract to guide students to understanding can be seen. Feedback has an established role as an ongoing feature of tutorial provision in higher education, but as indicated in the introduction to this paper, its nature gives rise to dissatisfaction. Again referring to the Hounsell work mentioned above, students' verbatim accounts of their experiences show that delayed unexplained suggestions are too vague and grading does virtually nothing for learning or for morale. However, if student dissatisfaction is directed to specific aspects of the curriculum it can give tutors valuable hints as to where they might look to benefit from adapting their teaching to meet the requirements of a learning conversation. They might try to construct feedback into the immediate engagement with the topic of learning. But, accepting that some feedback may be helpful even if delayed, observing Pask's requirement of well-targeted questioning and cueing to prompt learning could usefully help several students at the same time. When it comes to final assessment, if students are to be required to show understanding of some subject matter to the satisfaction of the examiner the nature of the questioning and assessment task requirements in the examination ought to lie close to the goal contract learning task requirements of a learning conversation, with examiner substituting for tutor. Perhaps the contract requirement for a strict learning conversation has most relevance for oral examination where the importance of assurance of satisfactory understanding is paramount.

The above discussion suggests it is instructive to compare a Pask learning conversation with the more common exchange in education where students are presented with the topic relation as a given modelled or verbal solution, with only some of the procedural argument needed to explain it, and that also presented as given rather than as explored modelling or explanation. In the Pask version the learner is required to work in a much more penetrating, constructive and critical manner which enables them to reconstruct the relation and its justification through their own working on future occasions. In the more common educational conversation the student is required only to restate the topic relation with some supportive statements. Whether or not any students pursue the conceptualising more adequately is a matter of chance prompting or of their existing approaches to learning. Here, I think, is the route to one possible answer to my problem of why the hypothetical student felt he didn't understand a particular chunk of learning. He had not missed the teaching – but he might have been given the solution before being given an explanation, and perhaps he had not been required (or required himself) to work through the second level. This gap could have undermined his grasp of what he saw as a chunk of work he had not understood. But there might be other reasons suggested by Pask's work, reasons to do with language requirements for the conduct of learning conversations, to which I now turn.

The language requirement for a learning conversation

Important conditions in Pask's experiments are the language requirements which cover the communication between experimenter, observer and tutor on the one hand and between tutor and learner on the other. I shall focus here on the roles of learner and tutor, and I shall therefore attend to the language used to express and question

problems and solutions. In the context of formal education, with a human as distinct from a machine tutor, this language is normally a version of the native tongue of one or both speakers. It functions well for the basic requirements of command and question involved in the learning engagement, but crucial questions arise over its adequacy for covering the conceptualisation of the topic and domain under investigation. Pask simply says that the language should have adequate pragmatic and semantic values for the tutor and learner to arrive at mutually satisfactory solutions to topic problems, and there is an implied expectation that the solutions will match the ways experts in the field deal with them. He did not follow this through, there being no reason within his argument concerning the adequacy of a learning conversation structure why he should. But if attention moves to the question of the meaningful content of the conversation, and therefore of the learner's understanding, further attention to the language requirement is indicated. This requires unpacking the relation between language and knowledge. In the context of concern for student understanding in learning in higher education I have found the work of Säljö, starting with his 1982 publication, a useful guide, insofar as it develops an argument linking language, knowledge and culture in the exploration of learning. This has informed the discussion that follows.

Since we are concerned with the development of conceptualisation we can do worse than start with its origins in childhood. Whatever claims are made about innate knowledge the appearance of language in use comes on the back of direct experience of the social and material worlds. Language comes to be used in the form of words or expressions which function as actions in everyday communication. Some of these are invented by the child. Some are adopted from the adult. They become meaningful because they are treated as effective in the action context, functioning to direct and respond to the other, and to indicate and describe objects of attention. The elements of a learning conversation can be observed. As learning moves further away from everyday experience more conceptual work is needed to relate the new to what is already known. The child meets new terminology and new ways of using words and expressions. Again it is the ways of using them that give the emerging language its semantic value. Because these ways of effective use are part of the practices of the social world, the child develops language within a cultural context – particular values and ways of acting in and on the social and material worlds. Learning requires relating these ways of acting to a language that can adequately function to communicate about them - new experience to new expression, new deeds to new words.

In other words conceptual and language learning must move in tandem, which is why it is so often a mistake to assume that if a student can describe and explain something in words then learning is adequate. It may well be a good copy of the forms of expression of what is being taught, but it does no service to the student to leave him or her insecure in the face of further conceptual problems which depend for their solution on previous well-grounded work. This is not to be critical of verbal learning per se, and certainly not to confuse it with rote learning, but simply to ask whether, when called for, it is rooted firmly epistemologically. Somewhere along the line verbal expression has to touch ground with physical and social reality. It seems to me that Anderberg et al. (2008) draw a similar conclusion with regard to the use of verbal expressions in discussion of topics within subject fields. Approaching the issue from examining interview data from research developed within the theoretical background of phenomenography, they comment in the case of one interviewee, "The problem with his use of the expressions illustrates a central and general problem that students have, that reproducing disciplinary language use/ways to communicate disciplinary subject matter, does not guarantee a disciplinary understanding.". Their recommendations for a form of dialogue that explores the student's use of terminology in describing the problem he is addressing before the discussion proceeds further are similar to aspects of Pask's minimal structure for a learning conversation. This chimes with my own belief that in a learning conversation conceptual and language learning develop

together. The language requirement of Pask's theory carries more weight than is apparent at first sight. In being adequate for the task of communicating conceptualising it must be open to growth to do so. Establishing a claim to understanding must necessarily build simultaneously on a sound epistemological base for conceptualisation and communication.

Hounsell and Hounsell (2007) showed something of what is entailed in higher education in a study of students' experiences in studying biosciences. Over a three-year period they were expected to depend less on secondary texts and tutor-mediated knowledge and more on research literature and their own investigations. As this transition took effect, particularly in their final year, the students reported considerable difficulty with new terminology and ways of talking about subject knowledge. The authors saw the difficulties as being related to a change in the language of learning engagements – a change associated with being inducted into the practices and workplaces of experts in the field.

A similar finding was reported by Francis and Hallam (2000) from a study of postgraduate students' reports of their experiences with different text genres in psychology. They found difficulty in pinning down the vocabulary and modes of expression of tutors and authors who seem at first to be using an unnecessarily specialised version of language, not that to which they had hitherto been accustomed. Only after considerable work (the amount varying with students' prior course experience) did the domain learning and the language come together more smoothly as students realised they were not simply exploring a specialised field of knowledge in terms of their own prior learning but learning how to work within it and, sometimes, to explore beyond what had been established as best known to date in the field.

A further study with postgraduate students (Hallam & Francis, 2010) explored their interpretations of the term "argument" as used in the research context in their subject field of educational psychology. The term was selected because it is frequently used with particular reference to constructing and reporting projects in that field, often with the assumption that its usage is already familiar to students. It was found, however, that there was considerable lack of agreement and clarity about what constituted an argument in thinking and writing in the field. Use of the term in the relevant subject mini-culture was still being learned. It may be the case that students working at doctoral level lack the degree of exploratory experience and related use of language found in their supervisors. This is to be expected at the beginning of what might be regarded as an apprenticeship, but it is also to be acted upon in the support given in research tutoring.

I have here developed an extension of the language requirement from learning in infancy to learning in higher education, and have drawn attention to the way subject field specialists have constructed their own practices of seeking to construct and evaluate new knowledge and new use of language in the course of conceptualising the domain that interests them. They have in effect developed specialised mini-cultures with their own terminology and investigatory practices within the general culture of formal knowledge construction – the research world of higher education. It is in the delicate interaction between teaching and research that student learning and understanding are sought by both learners and tutors. Exploring the language requirement suggests that natural language which serves so well with only minor extension during the school years continues to support learning in higher education but also gives way to the specialised usages of research communities.

5. Summary

It is apparent that this tour through student understanding, with guidance from the work of Pask and of Säljö, has repeatedly trodden epistemological territory. At every point understanding has been seen as exploration of the grounds of knowledge as worked on in culturally determined practices. Nowhere has a definition of understanding in terms of description of a state of affairs been deemed adequate. Such description has a role to play in learning, but only as a basis for

the explanatory work involved in understanding. The simple answer to my question of why the hypothetical student felt he didn't understand a chunk of work is that somewhere along the line that explanatory work had not been done.

So what has to be done to remedy the difficulty? The complicated answer would be to work through it with him, following at least a minimal learning conversation structure. The practical answer, in the world of higher education as it is staffed and funded, is likely to be to try to identify the problem and point him sufficiently well in the right direction to work on his own or with other support. In either case it should be remembered that explanatory work must touch the ground of the material world and of activity within it wherever it is necessary to avoid failure of understanding.

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Λέξεις και πράξεις: Μια ψυχολογική οπτική στην ενεργό φύση της μάθησης και της κατανόησης στην ανώτατη εκπαίδευση

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Περίληψη

Η εργασία θέτει το ερώτημα πώς συμβαίνει ένας φοιτητής ο οποίος έχει δώσει πολλές ενδείξεις ότι μπορεί να κατανοήσει την εργασία που απαιτείται στην ανώτατη εκπαίδευση, να νιώθει ότι έχει αποτύχει να κατανοήσει ένα μεγάλο μέρος της εργασίας που κάποιοι άλλοι κατάφεραν με επιτυχία. Ακολουθείται ένα σκεπτικό το οποίο αναπτύχθηκε κατά τη διάρκεια της διδασκαλίας και της ερευνητικής εμπειρίας της συγγραφέως με μικρά παιδιά και διδάσκοντες φοιτητών σε πλαίσια περαιτέρω εκπαίδευσης (further education) και ανώτατης εκπαίδευσης, όσον αφορά τη διαφοροποίησή τους (variation) ως προς την κατανόηση του τι πρέπει να μάθουν. Το πρότερο ενδιαφέρον της συγγραφέως για τη θεωρία του Pask, όσον αφορά το διάλογο στη μάθηση, συνδυάζεται με την αναγνώριση της σημασίας της κοινωνικο-πολιτισμικής διαμόρφωσης των μαθησιακών πρακτικών, όπως αυτές παρουσιάζονται σε εργασίες όπως του Säljö. Η εργασία του Pask διερευνάται στο πλαίσιο της χρησιμότητάς της για την εξέταση της φύσης της επιτυχίας και της δυσκολίας στη μάθηση, όταν αυτή λαμβάνει χώρα στο πλαίσιο συμβουλευτικών συναντήσεων (tutorials), συγκεκριμένα καταδεικνύοντας τη σημασία του καθορισμού εκείνων των διαστάσεων που αφορούν σε ό,τι θα μπορούσε κανείς να ονομάσει αρχιτεκτονική ενός διαλόγου μάθησης και οι οποίες (διαστάσεις) είναι ουσιαστικές για την ανάπτυξη της κατανόησης. Αυτό μας ωθεί να μελετήσουμε την κατανόηση ως διαδικασία προς μια συμφωνία και ως επίτευξη συμφωνίας ανάμεσα στο μαθητευόμενο και το διδάσκοντα σχετικά με τις διαδικασίες της έκφρασης και της επεξήγησης της εννοιολόγησης ενός θέματος στο πλαίσιο μιας γνωστικής περιοχής. Αυτό οδηγεί στην ανάγκη αναγνώρισης του τρόπου με τον οποίο πρακτικές κατά την κατάκτηση και μεταφορά της γνώσης διαφοροποιούνται μεταξύ θεματικών περιοχών. Η εργασία του Säljö είναι ιδιαιτέρως διαφωτιστική με την έμφαση που δίνει στους τρόπους με τους οποίους οι πολιτισμικές πρακτικές, όπως η γλώσσα, διαποτίζουν δραστηριότητες και διαμορφώνουν την ουσία και τη φύση της μάθησης. Η πορεία προς την απάντηση της αρχικής ερώτησης γίνεται αντιληπτή ως πρόταση ενός συνόλου ενδεχομένων που δημιουργούν προκλήσεις και καθοδηγούν τη διεξαγωγή και κατανόηση της μάθησης και της διδασκαλίας στην ανώτατη εκπαίδευση.

Λέξεις-κλειδιά: μη ολοκληρωμένη κατανόηση, θεματικές-προβλήματα, εργαζόμενες (τρέχουσες) συνθήκες κατανόησης, μαθησιακή ενασχόληση με το τρέχον έργο, μαθησιακοί διάλογοι, γλώσσα πεδίου.

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