SOME PERSPECTIVES ON INTEREST IN LEARNING AND CLASSROOM INTERACTION

(a part of the Classroom Learning Project)

Mary D. Ainley

University of Melbourne

What I want to do in this short paper is to give you the flavour of what the study of student interest has to offer a quest for understanding what is happening in classrooms. The perspectives which will be described arise from the rich data set available in the tapes from the Classroom Learning Project.

Why study student interest?

"Two of the Common and Agreed National Goals for Schooling in Australia refer to the closely linked purposes of 'fostering respect for learning' and 'developing commitment to lifelong learning'." (Ainley, Batten, Collins, & Withers, 1998, p.75). This recent report of the findings of a study of the social objectives of schooling as perceived by teachers and students, has drawn attention to interest in learning as one of these objectives. One of the findings of this national survey concerned the levels of interest in learning in Year 5 and Year 10 students. They responded to a number of items of a type closely related to the depth-of-interest subscale of the Two factor Curiosity Scale (see Ainley, 1987; 1994) which represents a pattern of behaviour whereby new problems and information are approached with an attitude of wanting to achieve mastery or understanding. When the level of interest in learning for each year level was plotted against student intentions to complete secondary schooling, there was a substantial difference between student intentions to leave at Year 10 or 11 and those who planned to complete Year 12. The highest level of interest in learning was reported by the Year 5 students who planned to stay on till they had completed their secondary schooling. These data were from the perspective of students responding to a pencil and paper survey and they need to be supplemented by perspectives on what actually happens in classrooms. However, the identification and measurement of interest in classroom interaction poses a number of important challenges.

Once you know it's there it's too late to see where it came from.

This is a paraphrase of the point made by Valsiner in his metatheoretical perspective on interest (Valsiner, 1992). "Interest", then, is not in the object, nor in the mind of the child, but it emerges as a result of processes that link the two in irreversible time. Once we have been able to "diagnose" its presence, we have already missed the opportunity to study its emergence. (Valsiner, 1992, p.33)

The strategy adopted for this investigation has started with the general shared meaning of 'interest', the indicators of interest as represented in the research literature. Sections of transcripts from the Classroom Learning Project were located which appeared to be instances of those general criteria for identification of 'interest'. The details of the data set were then explored to understand these examples of 'interest' from the perspective of the student's personal experience. First some background on the construct of interest as represented in the research literature.
Interest in Learning

When applied to classroom behaviour constructs such as interest, curiosity, engagement, and intrinsic motivation all carry the implication that the student has become actively involved with the content, or some aspect of the content, of the learning activity. A look at some of the ways in which the construct of curiosity has been framed by researchers over the years highlights some of the important aspects of the relationship between learner and object which are the focus of current research on the role of interest in learning and development.

Berlyne's (1960) classic work on curiosity described this relation between person and object in terms of exploratory behaviour. When curiosity is aroused the learner seeks further information to resolve the perceived ambiguity, complexity, or uncertainty. Berlyne's main focus was on the character of the situation. The phrase 'motivation inherent in information processing' was used by Hunt (1971) to refer to the uncertainty generated by puzzling and novel experience and the information seeking behaviour which followed. It is the tension of uncertainty generated when an incoming stimulus does not quite fit the known and familiar cognitive categories, which prompts further exploration and information seeking. The newly acquired information in turn brings about changes in the learner's cognitive categories or structures. Other theorists (Beswick, 1971; Day, 1971) moved the focus of attention to individual differences and developed trait approaches to curiosity. More recently concepts of 'flow' and 'undivided interest' (Csikszentmihalyi & Rathunde, 1992) have been used to refer to the personal experience which occurs when the learner appears to be overtaken and becomes "completely involved in something to the point of forgetting time, fatigue, and everything else but the activity itself" (p.59). Despite obvious differences in emphasis all of these approaches imply an active information or knowledge seeking character to the relation between person and object and this is central for its role in learning.

The different perspectives which can be distinguished in these early views on curiosity are reflected in the perspectives represented in recent theories of interest. One group of researchers have sought the origins of interest in relatively stable personal characteristics or dispositions referred to as individual interest (see Krapp, Hidi, & Renninger, 1992; Keller & Henderson, 1994). A second group (see Hidi, 1990; Hidi & Baird, 1986) look to understand interest through an examination of the special characteristics of the situation and refer to situational interest. Krapp et al. (1992) have summarised these perspectives adding a third:

"three major points of view are reflected in interest research: (1) interest as a characteristic of the person (interest as a personal trait or disposition), (2) interest as a characteristic of the learning environment (interestingness), and (3) interest as a psychological state (active interest, aroused interest). Both individual interest, in the sense of relatively stable preferences, and interestingness can bring about experiences and psychological states in an individual that are generally referred to as interest. Typical characteristics of this state might include increased attention, greater concentration, pleasant feelings of applied effort, and increased willingness to learn ..." (p.9)

It is the third of these the actualised state of interest, sometimes called 'active' interest, which is of special significance for the present analysis. The aim is therefore to identify and elaborate some of the psychological processes which are active when a specific student or group of students demonstrate behaviour which suggests that they are interested in the classroom activity, or some aspect of a classroom activity.

What are the characteristic behaviours which indicate that a student is interested in the task, or, finds the task interesting? Krapp et al., (1992) suggest increased attention, greater concentration, pleasant feelings of applied effort, and increased willingness to learn as
typical features of the state of active interest. Sansone and Morgan (1992) suggest that features such as engaging in an activity freely, with persistence, energy and intensity are the important hallmarks. Data from The Classroom Learning Project will be used to examine this experience of active interest.

Because this study is attempting to look at the personal meaning which characterises interest, the basic data will consist of what the students and teacher are saying about what they are doing in the classroom. This is supported by some gestural information from the videotape record. The section of the data set which will be used consists of two lessons (Integrated Documents 7 and 8) which recorded the interaction of the same group of girls and this analysis will focus on one of those girls. The two lessons are science lessons dealing with an investigation of fibres one on the Tuesday, the second on the Friday of the same week. The behaviour of one specific student is explored for its personal meaning to uncover what it has to say about the student's experience of active interest.

Questions as Indicators of Interest: 'Cause fibre is in paper, isn't it?'

One of the tasks set by the teacher in the second of these lessons was for each group of students in the class to make a list of as many things as they could think of that were made out of fibres. In her group one student gave the response 'Paper!' The transcriber represented the tone with an exclamation mark. Is this exclamation a pointer to something happening which might be interest in learning'? Is it in any sense an indicator of 'increased attention, greater concentration, pleasant feelings of applied effort, and increased willingness to learn'? This is why the Classroom Learning Project data is so useful for this type of investigation. We can move around in time and track the events which preceded it, what followed after, the ways the actors described what was happening when prompted by the video record, and in this way uncover more of the individual psychological perspective.

The initial 'Paper!' was a simple exclamation. In the context of the set of answers being given, various textiles, carpet, tents, etc. it clearly was a divergent line of thinking about uses of fibres. It was followed up in a later section of the same conversation with 'Cause fibre is in paper, isn't it?' The first part of this statement comes as an elaboration, but it tails into a question. The suggestion was met with a rebuttal by another member of the group. Questions by their form are information seeking but they can be directed to other ends. At this point there is no real evidence that this student was intent on finding out the answer to the question prompted by the responses of her friends to her 'paper' suggestion.

The Classroom Learning Project data however, lets us turn the clock back and look at lessons which preceded this exchange. In the preceding lesson the teacher had given the students, working in groups, the task of writing down 'All the things that you people know about fibres'. Sandwiched in a discussion which ranged from fibre in food to the microscopic fibres in the Omo advertisement, and unnoticed by the other group members, this same student had made reference to fibre in paper. She came back to it several times, but it was not taken up by any of the other members of the group. It had been the content of an exchange with the teacher as the teacher was doing her rounds of the groups. However, the teacher's contribution left the issue hanging unresolved. It would appear that some uncertainty about whether paper was made up of fibres had been generated and in terms of personal meaning, this was some of the background to the question put to the teacher in the next lesson several days later. The substance of the question was only one small element in two very 'busy' classes. However, a state of wanting to know the answer, has persisted over a number of days. Knowledge of the conditions through which this question arose (ie. state of uncertainty being generated and active questioning about the object) supports the
interpretation that it was information seeking and indicative of an interest in the knowing about the content of paper.

We can also move the clock forward. Four minutes after the question is uttered ('Cause fibre is in paper, isn't it?'), the class has moved into a 'reporting back activity' and the same student breaks into the flow to repeat her question. It is then clear that she was keen to find out whether paper is in fact made of fibres and this time the question has been directed to the teacher. The certainty which went with the exclamation had been challenged generating uncertainty. The experience of uncertainty appears to have prompted an information seeking question to an 'authoritative' source and the uncertainty was resolved with the student now knowing that paper did in fact have fibres in it.

Not only can we turn back the clock to look at what went before, forward to see what followed, but we can also turn to the student to have them tell us what they were doing. When this student was shown the section of the videotape dealing with these exchanges, she indicated the extent of the desire to know, the uncertainty generated by the responses of her group, and her strategy of asking the teacher so that she would have her uncertainty replaced by knowledge.

"It was just, I was wanting to see, 'cause otherwise I'd keep on going, but I'd either think that they weren't or I wouldn't know, 'cause I usually just listen to other people, what they think, and I was thinking, "Oh, it might be in there" and I thought "Well, she might know" so I asked her. Yeah."

The fact of asking a question is not of itself a sufficient indicator that the student is interested in expanding their knowledge or understanding. Most classroom questions are teacher initiated and are a check on knowledge rather than seeking to expand knowledge. Observation of the development and persistence of this question has provided clear indication that the intent of this students question was indeed information seeking. The student really wanted to find out something she did not know about paper.

Clearly, as Valsiner (1992) pointed out the study of interest and its role in learning is constrained by the difficulty of identifying interest. The same question, ie. the same set of words, can be directed to different ends. The character of the question needs more than its surface elements for the observer to interpret the personal meaning of the questioner. In this example the range of data available - from three vantage points - previous encounter with topic, the actual question and the context in which it was posed, and the personal reflection on what was happening at the time have provided a stronger interpretive base than any one on its own. For the external observer the persistence, increased attention and concentration with which the individual engages with the question is a clear indicator of interest, although frequently the onset and origins of that interest can only be recognised in hindsight.

The Experience of Interest: 'Oo, my gosh. That is so cool'

Another important element in the experience of interest is the affective component. The cognitive emphasis of theories of curiosity and intrinsic motivation in the 1970s (eg., Beswick, 1971; Hunt, 1971; Day, 1971) commonly accorded positive affect a place in the behaviour which was being described but saw its role as a 'by-product' of the information seeking which brought about resolution of cognitive conflict and uncertainty. More recent theories dealing with constructs of interest (eg. Krapp, 1994; Krapp & Fink, 1992) treat positive affect as an essential part of the psychological state of interest. The same is true for the related constructs of intrinsic motivation (eg. Deci, 1992; Sansone & Morgan, 1992) and flow (Csikszentmihalyi & Rathunde, 1992). The particular emotions which have been shown to be associated with a general interest in learning as measured by the depth-of-interest
scale of the Two factor Curiosity Scale (Ainley, 1997) are feelings of excitement, enjoyment and surprise. The Classroom Learning Project offers two sources of data for an analysis of affect as it relates to the interest in learning of the students being recorded - facial expression and gesture from the video records, and, emotional expression through language. The project was not set up to record all of the facial expression of the participating students and so the record here is fragmentary. However, the quality of the language in the transcripts from the recording does support a close analysis of qualitative changes in language which signal changing affect.

The task that had been set required the students to look at fibres under the microscope and to describe the weave in terms of its porosity. To complete this task required making up microscope slides of a range of fabrics and fibres, inspecting them, and describing them. The group of girls had not been long at the microscope when the language underwent a dramatic change: 'Oo, my Gosh. That is so cool', 'It's so amazing'. The language conveys excitement, surprise and enjoyment, the three key positive emotions which have been found to be associated with scores on a dispositional measure of interest in learning (see Ainley, 1997). The data set is sufficiently rich to allow cross checking of the meaning of these exclamations to validate this interpretation. The student has a bandaid on her finger and discovers an exciting perspective on it through the microscope.

'My gosh, have a look at the holes in it. Have a look at that, look at the holes in the Band-Aid, have a look. [N looks] You have to adjust it properly. But have a look at the holes in the Band-Aid. Those holes right, those kind of, in there. Isn't that disgusting?'

In what sense is this behaviour indicative of interest? It appears that the student was surprised at the new perspective on both her finger and the band-aid. The language used indicated that she was arrested by the grotesque and hideous in the familiar, it was after all her own finger. In this situation it appears to have been the character of the object, the interestingness of the object, which has prompted the state of intense involvement. Here the object of interest was what could be seen through the microscope eyepiece (a new perspective on herself, the 'interestingness' of her finger) rather than just the novelty of the microscope itself. This interpretation is confirmed by in the comments made by the student after the lesson. The same positive affect is evident in the language used to reflect upon what was happening. 'I love looking through them at your finger, and like, 'cause such a little cut on your finger looks so disgusting.'

In her work on situational interest in text, or interestingness of text, Hidi (Hidi & Baird, 1986) made an important distinction between the arousal of interest through uncertainty generated by the structural components of the text and the interest aroused through associations between elements of the task and aspects of the persons values, preferences or goals. Hidi argued that within this area there are themes of universal personal significance which arouse interest as well as elements of significance to more limited groups of individual learners. Encountering a new perspective on her finger with its cuts and band-aid is an example of this second form of situational interest, and with the intensity and energy of the response aroused has the potential for effective learning.

Disposition and Situation

The integrated data set provides a record of classroom interaction and reflections by participants on certain sections of that interaction. As Rodrigues and Helme (1997) point out the framework of the analysts who collect the data in a project like this are unlikely to direct them to record the precise selection within all the possible information from a classroom which is essential to all of the complementary perspectives which might be brought to bear on that data set. From the point of view of the broad range of 'interest' researchers an
important missing element is direct information on the orientation or disposition toward learning which is characteristic of each of these students. Such information is usually assessed using some form of self report measure. The advantage of this type of measure is that it allows assessment of the relative standing of any given student against the general norm of students of similar age and background. Early curiosity trait theorists such as Beswick described the student in terms of the degree to which they seek, maintain and resolve conceptual conflicts. A measure such as the Two factor Curiosity Scale (see Ainley, 1994) distinguishes depth-of-interest curiosity style, approaching novel and puzzling phenomena in order to understand, and breadth-of-interest curiosity style, approaching novel and thrilling experiences in order to experience what they are like. Another self report measure which has been used widely in Australian research is the Learning Process Questionnaire (Biggs 1987) which assesses the student's orientation to learning in terms of surface, deep, and achieving approaches. The pattern across these three dimensions has been used to characterise the student's general style of engagement with learning, for example, committed, disaffected, or disengaged styles (see Ainley, 1993).

Such student self report provides a window on the disposition from one perspective, albeit a very important perspective in terms of evaluation of interest in learning. Within the integrated data set there is also a window on the student's disposition toward learning and this consists of the student's reflections on her learning when these occurred spontaneously in the post class interviews. There are a number of utterances in these interviews where the student we have been following uses the language of disposition to explain or comment on what she can see herself doing on the videotape. From these comments it is clear that she attributes to herself a particular learning style and one which she sees as being different from the way her current science classes operate. A number of times this student indicated that she is happier and learns more when doing things. Just listening or just writing do not engage her. '... it seems as though, I don't know, I can't concentrate very much on this just being talked at. ... I need to be um, either involved or um, like I hate just listening to the one person just telling you all the facts, just straight like that. I like it, you know, um. Talking to my friends helps because ...'

A second perspective on the student's disposition toward learning is provided by the teacher through her later comments on the videotapes. From the teacher's perspective this student is generally not engaged with her learning. Analysis of the full transcript of the comments made after both of the science lessons on 'fibres' indicated that more comments were made about her by the teacher than about any other of the four girls who were videotaped during these two lessons. She was mentioned by name 4 times in the teacher commentary on the first 'fibres' lesson, 10 times in the commentary on the second 'fibres lesson'. Two of the other group members were each mentioned a total of six times in the commentaries for both lessons. The majority of these comments clearly suggest that the teacher saw this student as being uninvolved with the science course being presented: 'off with the fairies' (three times), 'off with the birdies', 'doesn't stay on task', 'always behind the eight ball', 'is never really involved in what is going on', 'basically seems to be off target a fair bit of the time'.

These comments have a broader reference than just the immediate incident in which they occurred. It is clear from the commentary that these are dispositional statements representing the teacher's view of the students general style of engagement with learning, her typical approach to her schoolwork.

Considering both student and teacher perspectives on this student's approach to learning is informative for the way it highlights the different starting points for both perspectives. The teacher's general characterisation of the student as 'away with the fairies' and not concentrating, sums up the degree to which she had mastered the basic learning purposes which the teacher had for these lessons. She had given little attention to the homework
requirements for the unit and in class did not produce a significant number of slides in the microscope activity. However, the episode of extended concentration on her finger and her bandaid under the microscope show that when her attention was arrested by something novel and hideous she needed no prompting to give it considerable attention.

In summary, research on student interest in learning from a number of perspectives suggests that persistence, attention, concentration and feelings of surprise, excitement and enjoyment are important indicators of student interest in learning. Interest adheres in a relation between learner and the object of the learning whereby the learner seeks to extend their exposure to the object to find out more about it. In classrooms the objects of interest do not always match those which a teacher plans to be the lesson focus. The arousal of active interest is a complex interaction between the dispositions and past experiences which a student brings to classroom and the structure of the situation they find there.
References


