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Probing understanding - an ethnographic study of student designing

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Abstract

In October 1989 a new honours degree in Design and Technology, which also offered Certificates in Education and Industrial Studies, commenced in the Department.

The course aims to link the processes underlying technological design to a much wider vision of the activity of designing. It proposes that these processes have powerful parallels with the activity of learning and the role of the teacher. Education and industry are two of the settings where these links are made.

Tutors on such courses normally access student's understanding of design and technology processes through project work. Adopting an ethnographic methodology, of observing and interviewing students in a variety of settings, I am endeavouring to identify the process learning that is taking place (as opposed to what ought to be taking place) and how that learning has been secured.

The paper focuses primarily on the methodology whilst the presentation will reveal the emerging results.

'What is an artefact if treated naively reflects a fact of life if taken seriously'

Schuman[1]

Introduction

King Alfred's College is a college of Higher Education and the Department of Design and Technology offers undergraduate courses all of which incorporate teacher training. These are: a 2 year Bachelor of Education (B Ed) for mature students from industry; a B Ed (Honours) with main subject design and technology for students destined for Primary schools; and a BA (Honours) which allows a choice of pathway leading to a Certificate for secondary school teaching or industrial employment. As its course director I have a particular interest in the latter course and this interest stimulated an extended study.

The BA course team wanted to identify in this course central and unifying threads which link the processes underlying technological design to a much wider vision of the activity of designing. We developed a concept of three inter-relationships between key processes: designing, learning and teaching, and these were seen as central to the realisation of the course's aims:
- the learner as designer
- the designer as learner
- the teacher as designer

The rationale that unites these inter-relationships is that the processes underlying technological design could be seen as having their parallels within:
- the activity of learning
- the tasks of the designer working in industry
- the role of the teacher as a supporter of learning.

The course has three major 'settings' for exploring these inter-relationships: industrial placement; school placement; college based design and technology project work. Adopting an ethnographic methodology of observing and interviewing students in these settings, I am endeavouring to describe:

- *what* concepts of design and technology are being developed in BA students
- *how* those concepts are being developed.

This is in contrast to my initial conceptualisation of the study where students' concepts were to be *measured* against the intentions of the course - the distinction between what ought to be taking place and what is taking place.

What is ethnography?

It is a method of empirical enquiry. Its characteristic method is participant observation during fieldwork. It emerged out of the discipline of anthropology in the early years of this century as a means to study cultures within societies. The sites of the early investigations were NW America and the islands of the Pacific basin. Participant observation engaged the observer in close contact with the way of life of the peoples, but without intervention in the flow of their activities.

This required observing closely at first hand the members of the society in their every-day activities as well as the 'important' rituals which previous

investigators in the discipline had taken as the primary focus of their work. In most cases it required the learning of their language in order to talk at length to them and often participating in the activity under investigation.

In this way it was hoped that the complete culture of the society could be understood, and with the disturbing effect of the outsider being substantially reduced or completely negated. The activity aimed to understand another way of life from the native point of view,

> "to grasp the native's point of view, his relation to life, to realise his vision of his world"
>
> Malinowski[2]

The principles of this method were adopted by some Western social scientists for the investigation of facets of Western societies; whether in prisons, hospitals, classrooms or the streets of villages or cities. Three examples amongst many are: in the USA; Whyte[3] - street gangs in Boston; Agar[4] - heroin addicts; and in the UK, Atkinson[5] - the training of medical students.

If ethnography is engaged with learning from people rather than studying people, it is well suited to the detection of unofficial versions of social reality. *What people do and what they ought to do are very often different.* Because of this there is frequently a discrepancy between what people do and what they say they do. Therefore one must look beyond the public and official versions of reality in order to examine the unacknowledged, or tacit understandings as well.

While watching, listening and asking questions, the ethnographer comes to assimilate the knowledge and perspectives of the actors concerned. The approach is not unlike that of novices and outsiders except that ethnographers remain aware of the process of learning and develop such self-awareness as a resource in data collection and analysis.

Ethnography in education

> 'The focus of good ethnographic work is on what the educator takes for granted.'
>
> Delamont[6]

There has been a significant rise of ethnographic approaches to educational research in Britain. Until the 1960s the sociology of education frequently treated education as a system using the crude model of input, process and output. Emphasis and consequent measurement was given to the input (ie social class, family background...) and the output (attainment, occupation...) but the processes were generally not explored. The research associated with the Plowden Report is symptomatic of this:

> 'what goes on in primary schools cannot greatly differ from one school to another, since there is only a limited range of material within the capacity of primary school-children'.
>
> Plowden[7]

An initial impetus came from Hargreaves[8] and Lacey[9]. Typical concerns have been the development of pupils' identities, teachers' perceptions of pupils and their abilities, and pupils' definitions of school subjects. Examples are collected in Stubbs and Delamont[10] and Woods and Hammersley[11].

This study

The methodology needed to: reflect the ethos of design and technology, especially its holistic nature; adapt to complex course settings; encourage and support curriculum practice; and particularly, describe what actually happens rather than what is intended on the course.

From participating in the students' daily lives, watching what happens, asking questions through semi-structured interviews, listening to what is said, I believe that an ethnographic approach is admirably placed to meet these needs.

Fieldwork settings of the study

In order to explore the worlds of education and industry and to ensure a relationship between course experiences, all BA students undertake two placements each year during the first two years of the course. One placement is in a secondary school (in which the student takes on the supervised role of the classroom teacher), and the other is in an industrial environment. In College, design and technology project work holds a central and continuing focus for the students. These were the three settings for the fieldwork.

The industrial setting was explored through semi-structured interviews at the completion of the placement but with no observations in the field, whilst the school setting was explored through a semi-structured interview directly following the observation of a lesson. Design and technology project work involved some observation of students in studio and workshop but interviewing has been the primary method. In these interviews, current project work was used to clarify and triangulate with emerging meanings, but care was needed that the interview did not become locked to the concerns of a particular project rather than to the exploration of meta-meanings.

Most ethnographers would believe that approaches must not be formulaic; specific situations will outline specific approaches. I have viewed the fully transcribed interview as my primary form of data, with participant observation as a means to illuminate and clarify the jointly constructed discourse of the interview. This decision has been influenced by practical considerations and by prior personal knowledge of many of the settings.

Reactivity with the data

As a design and technology tutor in the department and as a teaching practice supervisor I have undisputed access to many of the fieldwork settings. This prior involvement has short-cut some of the time-consuming and stressful aspects that can occur in novel fieldwork settings. However, balanced against those advantages is the potential problem of over familiarity with these settings, which can deprive a researcher of the cutting edge of 'strangeness' - the need to treat as problematic things that participants treat as normal. Additionally, I have a stake in the students' responses, in the school setting as their teaching practice supervisor, and in all settings as the director of their course.

This power relationship and the need to bracket my own conceptions (to allow myself to be surprised) were recognised at the outset of the study, and addressed through very open interviews where question content and interviewer response (including body-language) were conducted so as not to lead the informant. At this stage of the study I feel that this approach is achieving my aims.

Analysis

Ethnographers try to avoid sharpening their problems into specific research hypotheses until considerable exploratory investigation has occurred. However, this is not to suggest that ethnographers enter the field without guiding principles - not with empty minds but with open minds. They generally begin with a broadly defined area and some sensitising concepts drawn from previous experience or research. These guide the looking and talking but are viewed as only provisional. The researcher is actively seeking the emergence of new themes and is continually ready to re-conceptualise.

The aims of the course could be seen as the major source of these sensitising concepts, but what must be guarded against is a sophisticated game of I-spy where these pre-defined, external to the student, concepts are 'spotted' in the field and other meanings are neglected. The distinction between what we would like to happen and what is actually happening.

This need for a degree of 'naiveté' is guaranteed partly by the uncertain nature of the discipline of design and technology. The literature displays a concern for implementing policies but far less for investigating the nature and development of design and technology capacities. I have looked to the work of the APU[12] as an empirical source, and in particular *Section 12: Exemplifying the qualities of capability.*

The initial stage of my analysis is to identify procedural qualities in data derived from *any* setting of the study, and from these examples to outline *what* concepts of design and technology are being developed and *how* they are being developed. In parallel with these researcher-generated concepts, students' concepts - the meanings they use to understand their actions in course settings, are actively sought in the data and which may offer new areas to investigate. The first stage is to read closely the transcripts - to use them to think with, and to see what concepts arise from them.

To assist this dialectical process of construction and reconstruction of ideas, a single setting is viewed to see possible differences and commonalties between various students' conceptions, and one student's conceptions are viewed in a variety of settings.

Emerging Results

Rather than an inchoate overview, I cite an emergent student-generated concept, with interviewer questions and commentary to give a flavour of how this methodology has the potential to elicit these insights.

> Interviewer   *When you went into the* [industrial] *placement did you have any personal objectives that you had set for yourself?*
> Student   *...on this course...I've spent a lot less time making things and a lot more time thinking about things and processes, interactions between people, and I realised that this is in many ways the essence of design...I really had this need to create tangible objects and I'd spent a lot of time thinking and not doing much. I was beginning to see that as me not being productive and the experience that I'd gained from that morning* [on the industrial placement] *was watching people and realising that 90% of design goes on in those very early stages and it's very important to develop your interaction skills ...*
>
> (as transcribed)

This is interesting - not only is a substantive distinction being made between 'thinking' and 'doing' but it appears to be strongly hierarchical. (If recognised contemporaneously with the interview this may be pursued by the interviewer.) Later in this same interview the response to a question that has infinite possibilities continues this theme:

> Interviewer   *Do you remember anything that you read whilst on the placement?*
> Student   *I was quite interested in the foyer area, they have this stand and I picked one up and it's a display package that goes through* [host company's] *work and I was interested to see the leading leaflet in this package was to do with philosophy or the philosophy of this particular design group and the actual designs that they were producing very much took a second role to that. I was surprised, it wasn't what we've done but more of this is what we think.*

Once identified, this bifurcation is seen in other students in other settings:

> Interviewer   *Have your feeling changed about the course following the* [industrial] *placement]?*
> Student   *...my fear is, I see the course split again into two. The design process, the intellectual part of designing I feel more and more happy with but...*

An emerging concept may be referred back to an existing literature, in this case, Ryle[13], Harrison[14] or it may be necessary to develop new terms to characterise new types. The aim is a fuller description of student meanings and to explore events that reinforce or challenge these concepts.

One further example, with course inter-relationships emerging, illustrating the need for non-leading questions to allow the emanation of informants' meanings:

> Interviewer   *Have you been able to use any of your experiences of designing to help you in your planning of your work on the* [teaching] *placement?*
> Student   *In planning? No, I don't really think I have. I suppose it depends in the sense that you look at it. If you look at it as identifying a problem and overcoming that problem,   is that what you mean?*
> Interviewer   *In any sense you like. In any sense of your sense, the sense you want to make of it.*

> Student   *Right okay. Well, I think in a sense, once you start design at a higher level, it starts to get under you and it starts to get into your skin and I think you start to approach, or I do, approach everything in a sense as a design problem. That you have a problem to overcome and you don't just say, you don't just blast into things, you step back and you say well what really is the problem here and what are the alternatives? What other ways can I approach this from? So in that sense, but I use that in generally everything now. I think that's something which comes out from the course.*

Summary

Ethnographers would contend that their approach can reduce the chasm that is so frequently perceived between theory and practice in education. Research for many teachers is an obscure and opaque, jargon-ridden, theory-laden discipline that offers little for them. Ethnography can contribute to teacher professionalism because it can be concerned with questions that teachers can recognise as their own. In dealing with their questions and problems, it has the intrinsic agenda of attaching importance to their views within their frames of reference (concepts, values, motives...) using the language of the actors in the setting. It may stop at the level of selected description, or move to the elucidation of theories. Ethnography can help educators gain new insights, and in questioning their 'reality' question the notion of a single one reality, Castaneda[15].

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