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Research Article

Student perceptions of learning, as captured through a camera lens.

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Abstract

Learning has been studied from both theoretical and practical standpoints over many years, though almost invariably from the adult perspective. This study explores learning as perceived by teenage secondary school students, who used cameras to capture images to tell the story of their learning. This was approached through a qualitative, constructivist grounded theory methodology and drew on data from different levels within the study. Using the images as a starting point, interviews provided responses which were analysed to draw out a substantive theory. The young people in this study described their learning by 'Linking it' with other concepts, 'Locating it' space and time (predominantly in school), 'Associating it' with other activities, 'Ascribing worth' to different aspects and just occasionally 'Thinking about it' in abstract terms. The findings from this study should be extended to explore more purposefully the disconnect between the examples of formal learning providing most of the data for this study and the more rounded experience students enjoy across their daily experience.

Keywords: *learning; perception; grounded theory; photo-elicitation*

Introduction

It all began with a single Tweet (see Figure 1). Which prompted the thought − what if students were given a digital camera to record their learning for a year? In recent years there has been a noticeable shift to place 'learning' at the heart of education. Consider the proliferation of terms we now commonly encounter: student-centred learning, learning to learn, collaborative learning, lifelong learning, e-learning. If learning is becoming more

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prominent, then perhaps it's time for a closer examination. Unfortunately (or fortunately) different people bring different ontological perspectives to the table; learning is different when viewed through different lenses: teacher, psychologist, philosopher, Secretary of State for Education. The aforementioned tweet helped me see that whilst theories of learning might be all well and good for teachers to consider how they address the challenges of their working lives, perhaps we ought to be paying more attention to the way that the people to whom it matters most view their learning. What do students think?

Figure 1: Twitter feed @tombarrett (2009)

Background

The question I wanted to address then was how do pupils perceive learning? What are their views on the activity which forms such an integral part of their formative years, both formally through the education system and informally in their everyday lives? As professionals, we make assumptions daily about what is best for our students, but rarely provide them with the opportunity to feed back the way they view their learning. What strategies do they employ, what do they enjoy, what do they find efficacious and what tedious? How do they see their learning landscape? As uncharted territory to which they're exposed by experienced guides, or an adventure playground they're free to explore?

My intention was that pupils would have a camera for an extended period of time, capturing photographs which illustrated the variety of ways in which learning was woven through their lives and had significance for them. The study was conducted in a cross-phase (4-18) independent girls' day school. A grounded theory approach was chosen to best suit the needs of the study and might enable a theoretical understanding of pupil perceptions of learning to emerge from participants' experiences.

Cameras used as tools for participants to gather research data bring several advantages, not least that the researcher does not have to be present during data collection, This empowers the participant with much more freedom of choice over what to record, in addition to both temporal and spatial freedom (Barker and Weller, 2003). The photographs also bring other advantages later in the research process when participants discuss their choice of imagery, giving structure and focus to an interview and acting as a prompt or aide memoire. With children in particular, they can assist in capturing the interviewee's attention more easily and for longer.

Methods

Although learning theories and models of learning are well documented in the literature, the ways in which young people understand what they are doing when they are 'learning' is less common. We need to explore their opinions, how they feel and important factors which have an impact. The desire to better understand school life from a pupil perspective became more prevalent in the late 1960s and 1970s with studies like that of Meighan (1977) which acknowledged that at that time 'The research available on the pupils' point of view regarding schooling is limited,' a view echoed by LeCompte et al (1992). As one century gave way to another, interest in the pupil perspective increased, morphing into an agenda termed 'pupil voice[1]'. In trying to bring order to the differing pressures from various political agendas, Clarke et al (2003) identified three levels from which the pupil voice can be approached:

- Listening - an active process of communication involving hearing, interpreting and constructing meanings.
- Consultation − listening to seek views as a guide to action.
- Participation − active involvement and a shared ownership of the decision making process.

This study aimed to seek involvement from pupils at the third level, empowering them to play an active role in driving the direction from which outcomes would emerge.

Methodology

Given the exploratory nature of this study and the desire to approach the subject inductively, a qualitative methodology was chosen as most appropriate. I elected to follow the principles

of constructivist grounded theory proposed by Charmaz (1995 &2000) in which researcher and participant(s) act as co-producers of data and co-constructors of meanings which arise from them. Charmaz eschewed the notion that the researcher is able to objectively reveal the meaning hidden within the data and that the reality as perceived by them is constructed as a result of their values, history, cultural context and that of their research participants. As Charmaz (2000, p524) puts it ‘‘discovered’ reality arises from the interactive process and its temporal, cultural, and structural contexts.’

All grounded theory methodologies have at their core the following principles (synthesised from Charmaz, 2006; Hallberg, 2006; McCann & Clarke, 2003):

- simultaneous data collection and analysis
- the constant comparative method used at every stage of analysis
- ongoing theory development
- constructing codes and categories from data rather than from preconceived hypotheses
- memoing to refine and elaborate categories and their relationships
- theoretical sampling for theory development and not for representativeness
- delaying the use of the literature until analysis is well under way

Practicalities

Four students made up the initial sample, chosen to represent the spectrum of ages in secondary education (11 – 18) and recommended by their teachers as individuals who could undertake this task maturely and who would understand the need for sensitivity using a camera in this way. They were provided with a digital camera with which they would record images of what they perceived to be learning. They were also provided with guidance on managing the camera, but none on what might constitute appropriate subject matter, other than to capture any examples which illustrated learning. The cameras were to be kept with them wherever practical, for use both in school and away from it ... wherever that might entail. Although using their mobile phones might have proved practically easier, especially as it would obviate the need for the students to carry an additional device, it would introduce potential barriers. The use of mobile phones in lessons is still rare and despite staff being informed in advance about the students involved and the nature of the project, using digital

cameras would reduce some of their concerns over potentially inappropriate use and images somehow getting into 'the wild.'

Adjustments

The original intention was for the participants to be given a camera which they would keep over a protracted period of time, possibly a whole school term, capturing images of learning as they saw fit. As the images were captured, the technology would transfer them automatically to an online storage area to which participants would have access individually and as a group. Within here they would begin the process of ascribing meaning to the images by grouping them within folders and/or tagging them with keywords. The participants would regularly meet as a group to discuss their images and those of their co-researchers. The intention here was to develop a more thoughtful approach to the contents of each image, so that subsequent photos might become more informative and meaningful. This iterative process of image capture, grouping/tagging and negotiating meaning would lead to an increasingly sophisticated set of images which would tell the complete story of these participants' learning.

Although that was the intention, events didn't quite work out that way. The commitment required for this approach was quickly revealed to be too demanding and unsustainable. The students lost momentum (within a matter of a couple of weeks), feeling they had run out of steam and had captured every type of learning situation they could, as Barker and Weller (2003) also found. Although I felt that talking through their findings with them might re-kindle their investigations, I had three reservations (Glaser & Strauss, 1967):

- an ethical concern that the amount of time I was asking them to commit to the research might have a detrimental effect on their schooling
- that if they only continued feeling that I had put them under pressure, their data gathering might become skewed.
- that this might start 'forcing the data'.

Instead I elected to interview each participant and, with their permission, make an audio recording for later transcription. The interviews were open, allowing the participants to use their captured images to drive the topics which were explored. Their images were projected onto an interactive whiteboard screen which allowed them to easily focus on a single image if

necessary, to group them together, to order them, to filter them and perhaps most important of all to annotate them, thus providing an opportunity for coding (see Figure 2).

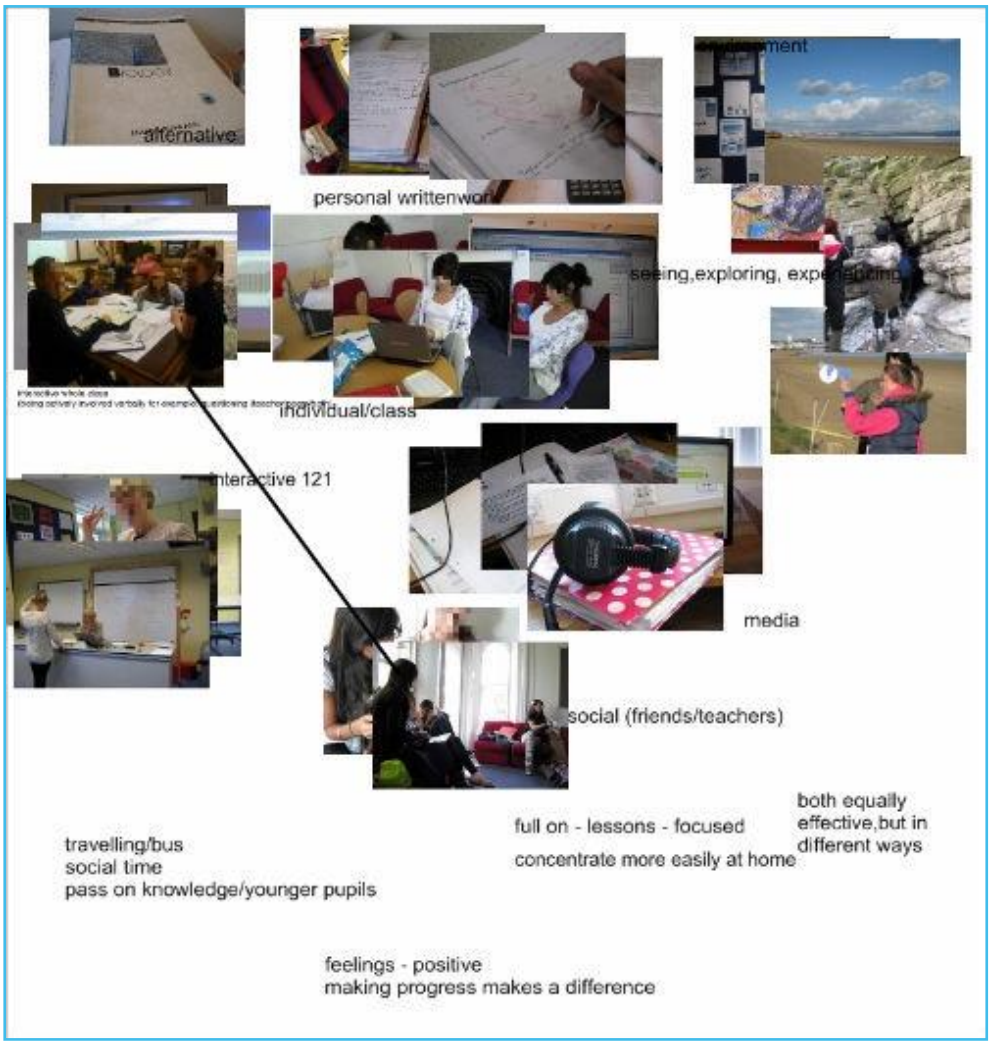

Figure 2: Screen capture from interactive whiteboard

Helpfully as groups are formed, it is easy to amend their composition just by dragging the images elsewhere, or if an image needs to exist in more than one group, it is easily copied. The act of dragging an image around the screen and adding a verbal description and explanation to provide context at the same time seems to provide a much richer experience. Physically being able to drag images into groups and see the group starting to swell in numbers whilst other images appear isolated also sets a different (more informative?) scene than if they had been tagged then filtered to be viewed as a coherent group.

Following each interview, I began to code their responses, sometimes with new codes and sometimes with ones from prior interviews. Some codes were captured as in vivo codes whilst others were generated by me. The timeline for the project is shown below in Figure 3.

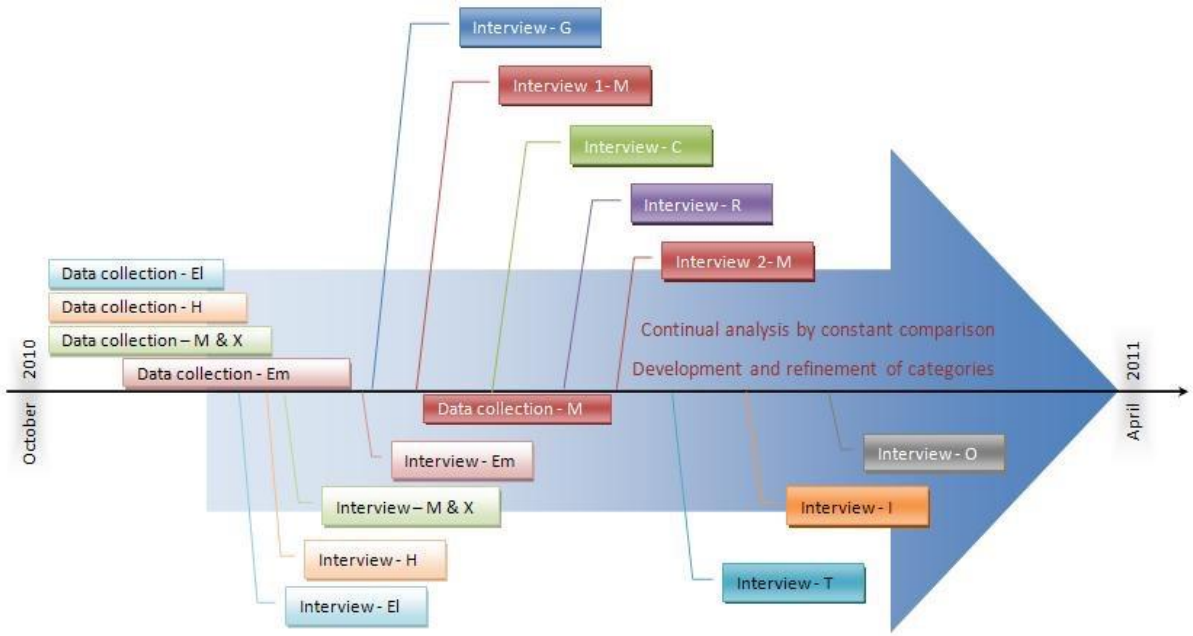

Figure 3: Project timeline

Second Phase

Once the initial participants had all been interviewed, it became clear that the advantages of interacting with an extensive catalogue of images in this way were being outweighed by disadvantages. The time required to mentally process such a large range of images and reflect on the meaning of them, important though this process obviously is, meant precious interview time was being absorbed with little additional data being generated. However this initial input from participants began to filter and categorise the images, suggesting areas of interest for further study. In the next phase a smaller subset of images was selected to be shown to a second cohort of students known as respondents, since they weren't involved in the image generation process, but did provide their thoughts on the images generated by the previous set of participants.

In the second phase of the project then, the emphasis swung away from the cameras to focus more closely on the imagery already captured. Images were purposively chosen to test,

challenge and extend emerging categories and these images were discussed with a second set of respondents, once again largely on an individual basis. The sample of eight respondents (once again spanning years 7 to 13) lacked intimacy with the photos in the same way that the previous participants did; not having the same sense of ownership perhaps allowed them to approach their interpretations more objectively. As potential categories began to emerge, their scope, importance and robustness needed to be tested, so it became more important that I directed the choice of imagery to explore significance and to determine the properties and dimensions of those categories. As this process continued, it became necessary in some cases to discard categories where the conceptual level could not be raised beyond description. In keeping with grounded theory principles, coding, categorisation and theory development continued with successive interviews (as shown in Figure 3).

Findings

Using the Compendium application (http://compendium.open.ac.uk/institute/index.htm), meaningful phrases extracted from interviews were mapped out and coded by tagging. Figure 4 shows the data from a single interview. A digital 'sticky notes' application then allowed me to rearrange initial codes and memos, test emerging concepts and form theoretical codes.

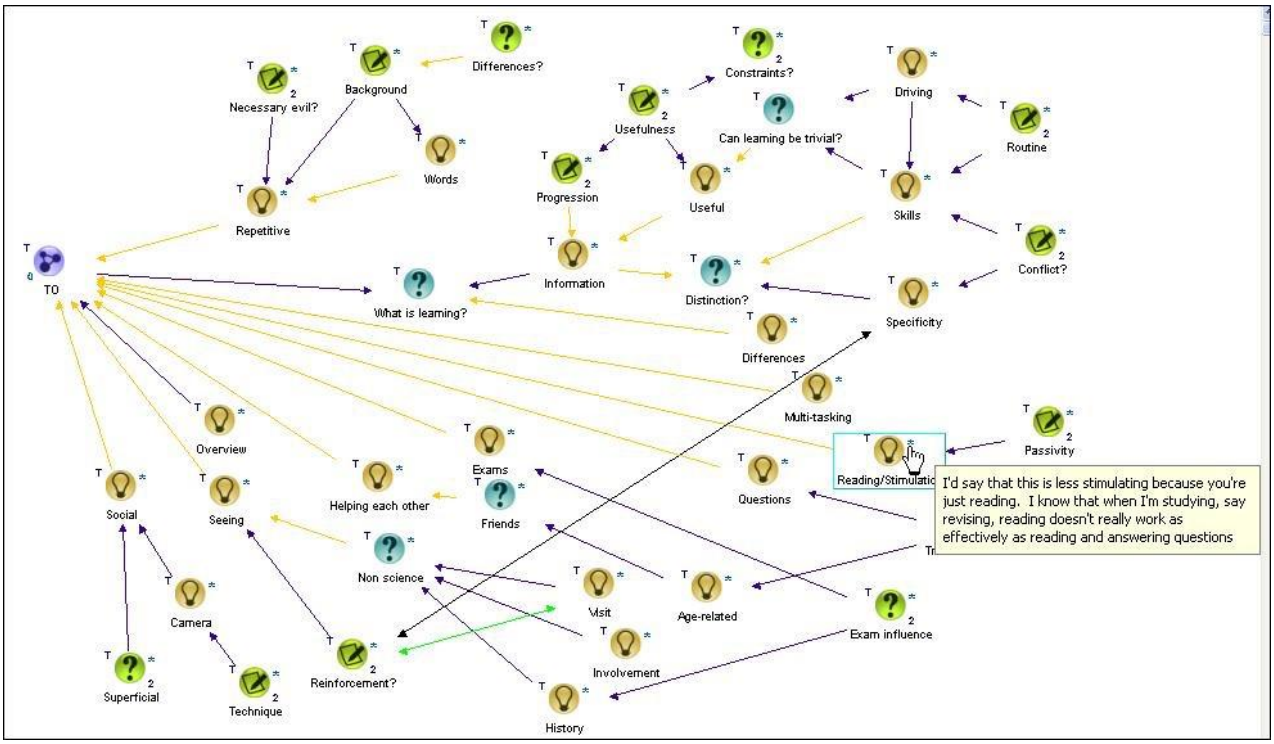

Figure 4: Compendium interview snapshot

The images captured by the participants and their subsequent responses made it clear very early that they found it very difficult to describe learning in isolation. They don't see learning in the way an educator might and couch it in terms like "Learning is the lifelong process of transforming information and experience into knowledge, skills, behaviours, and attitudes" (Cobb, 2009) or even see it in its most simple form as a change in behaviour. Instead they tended to view learning as being bound within or associated with specific situations and activities. They find a hook onto which they can hang the coat of learning. They 'Link Learning' with more tangible processes, seeing it manifest through different experiences.

Table 1 below sets out the categories which emerged, and provides definitions, properties and examples of the codes which led to them. Codes coloured red are the in vivo codes generated by the participants/respondents.

Table 1: Emergent categories, definitions, properties and examples of codes

Categories	Properties	Definition	Dimensions/ conditions	Codes
Assoc-iating learning with	Accumulating ideas and information. Remembering and revising. Focusing attention.	Using other activities or tasks as manifestations of learning	Descriptive - Active	Reading Discussing Revising Listening Drawing Concentrating Making notes Working
Gathering support through	Seeing the teacher as pivotal. Gaining affirmation and encouragement from friends and parents. Benefitting from a 'wise' other.	Drawing on mechanisms which assist and promote learning.	Teacher - Friends - Parent - Others	Asking questions. Being encouraged by parents. Asking for help. Being directed by others.
Ascribing worth to	Hands-on practical, immersive activities. 'Academic' rather than skill-based disciplines. Examination-targeted activities. School learning rather than self-directed.	Bestowing greater value on some activities than others.	School directed – Self directed Academic – Practical Variety –	Trusting certain sources. Devaluing certain activities. Connecting better learning with hands-on activities.

Categories	Properties	Definition	Dimensions/ conditions	Codes
	Variety of task and experience.		Uniformity	
Locating learning	with specific places. with specific activities. within curriculum studies.	Situating learning within certain contexts.	In school - Out of school	School Visit Writing Maths
Thinking about learning by	Reflecting on their thought processes and actions. Identifying different types of learning (VAK). Adopting strategies which enhance learning. Acknowledging that learners have different needs.	Undertaking some element of metacognition.	Meta-cognitive knowledge Meta-cognitive skill	Developing a learning strategy. Learning styles. Different learners/types. Linking learning with the brain.

Associations with learning

Of the categories which arose, this one above the others was predominantly generated from the in vivo codes of the participants. In order to describe the learning taking place in the images, the most common method was to associate the learning with a specific activity, like 'reading,' 'writing' and 'making notes.' For example:

> *'This is my history coursework which involves lots of reading specialised texts and making notes on them and making notes on what I think of them and writing them and putting them in an essay'.*

Although some of these activities were rather vague, like 'working,' several involved assimilation or gathering of information and others some element of processing as we can see in this word cloud (see Figure 5) where larger words indicate a higher frequency of occurrence:

Figure 5: Word cloud of vivo codes

Locating Learning

Responses invariably located the image, and by association the learning, in one of three realms:

- a place (e.g. the gym)
- an activity (e.g. reading)
- a curriculum subject (e.g. Maths)

All the images, and by consequence all the discussion, focused squarely on school based contexts. Even the few which weren't taken physically in the school, were taken on school-organised activities or illustrated tasks which were being undertaken as an adjunct to, or in preparation for school e.g. homework or revision. When given the freedom to describe any examples of learning that might be missing from the range of images they'd just examined, it was still school that formed the point of reference with suggestions like clubs (examples given were those in school), tutorials (one-to-one teacher support) and revision sessions. When coaxed to entertain the possibility that some of their learning might take place in the world beyond school, it was generally softer or people skills that were cited like teamwork, communicating or 'dealing with people.'

Ascribing worth

Students increasingly develop a sense of what works for them in terms of their learning, valuing certain experiences and activities over others. This might draw on the nature of the activity, the location in which it is taking place and the people they are with. They attach importance to hands-on or experiential opportunities such as those encountered in subjects with a practical element such as science or when out of the classroom and school entirely (see illustration in Figure 6):

> *'Well it is kind of like a normal lesson but it isn't in a way because it's some sort of guide taking them around and they're going to learn about the environment or something and they can see everything while they're talking. If it was in a normal lesson, they'd just have the whiteboard and pictures on the whiteboard, but then they can see it for themselves in real life'.*

Figure 6: Students on field trip

Many schools, and possibly even the teachers in them, distinguish between 'practical' and 'academic' subjects, so it is no surprise that the respondents do the same. In describing the difference between two groups of images she had chosen, M noted:

> *'I went for practical things and academic slash book-based things'.*

And despite giving more thought to the matter when challenged, their initial responses can be quite telling. Discussing a group of several images, X singled one out as being different:

> *'All the others are learning, but this one's PE'.*

Gathering Support

Although the learning process can be a solitary affair as illustrated in some of the captured images, for the most part it does not take place in isolation. Whilst there are about the same number of whole class photos or images showing small groups, very little comment was made that the learning was social in nature, nor that collaboration was taking place. In the few images where students were clearly working in pairs or small groups, respondents noted that a discussion was taking place, without making the next leap that the discussion might be helping individuals to formulate ideas and opinions for themselves and with each other.

> *'That looks like a group discussion, where everyone expresses their views about things'*

Despite these observations, it is quite clear that students do draw support from a network of others, or perhaps this could be described more accurately as a hierarchy, with their teachers clearly at the apex. Teachers occupy a position of unchallenged trust, providing the definitive source of support:

> *'If it's really something you can't get, you have to ask the teacher. If you really, really don't understand, no-one else can explain it to you other than the teacher.'*

Thinking about Learning

Although it was rare for participants to make explicit reference to metacognition during their responses, teasing out metacognitive elements within responses is not difficult given that they were clearly asked to talk about the 'learning' they saw in the images. In describing how spider diagrams support her learning process, M exhibits metacognitive knowledge (see Figure 7) in explaining that this cognitive strategy has assisted the process of reconstructing the information she needs in an examination:

> *'Normally when I revise, each subject has a different colour and then each spider diagram has different colours for the links. So that when I'm in an exam I know that history is blue and the links will have been in orange so I can remember where they went and think of it like that.'*

The introduction of a 'Learning to Learn' course in school is beginning to provide respondents with the vocabulary needed to make their appreciation of the factors affecting their learning more explicit:

> *'It's an experiment. I like doing experiments; it helps me learn. Because it's practical and then you've done it yourself. You remember it better instead of just writing it down. Kinaesthetic learning!'*

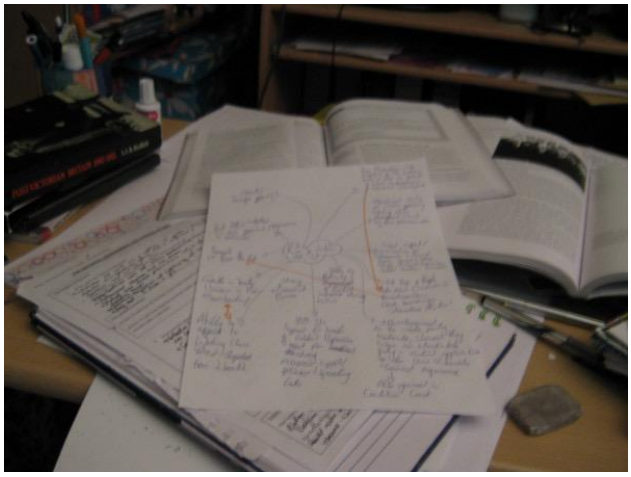

Figure 7: Student's spider diagram

Discussion

When the first seedling of an idea for this study sprouted, the intention was to capture images of learning through the eyes of pupils over a whole year. The images would stand alone, have sufficient worth and carry so much meaning in themselves, that they alone would tell the story of how pupils perceive their learning. The practicalities and reality of that undertaking may have proved that to be more difficult than I originally imagined, though the change in emphasis to one of dialogue, centred on the images was no less valid and perhaps more informative. Had I not sought participant explication, then extracting meaning from the images would have demanded I interpret them and the story I would have created might not

have been the story the participants intended to tell. By adopting a grounded theory approach where the findings are rooted in the data and by changing the emphasis to one in which the participants' words have power through the inclusion of in vivo codes, I feel I have stayed close to the original aspiration, even if the methodology might have been adapted.

Examining the findings

The core category of 'Linking my Learning' then is the over-arching theme which describes how students make meaning of their learning. They perceive learning by associating it with accumulating and processing information for future use. This takes place within specific places and activities and is predominantly associated with school-directed activities. As a consequence, the majority of the support and guidance which plays an active part in their learning is also perceived as arising from within school. Students make judgements about the factors involved in their learning, ascribing worth and value to some aspects, whilst suggesting that others may affect learning negatively. In considering these elements within their learning, students reveal the seeds of metacognition which have begun being nurtured more formally through programmes in school.

Learning for the students in this study is inextricably linked with school and their teachers; that taking place elsewhere and if different circumstances is not held in the same regard. It has to be noted however that his study did originate in school as far as the students were concerned, and as such may have influenced the direction the participants chose to explore and discuss. It is interesting to speculate that were a similar study to be undertaken through say a sports club or Scout group, whether school would still be seen as the primary focus from which learning occurs.

Given that the cameras were in the students' possession to be used as they saw fit, it was expected that more, or at least some, examples of images illustrating informal or non-formal learning might have been captured. This proved not to be the case, possibly because situations like play, social interactions, clubs and societies, holidays and visits don't constitute learning opportunities in the participants' minds. Or maybe capturing those opportunities with the camera lens is more elusive, or it might be as simple as the camera being an inconvenient intruder in those situations.

The use of the cameras and images

From the moment of conception, an important element of this study was to attempt to capture learning with a camera lens. It is important therefore to reflect on the extent to which that was successful. The fact that respondents were able to tell the learning stories embedded in the captured images, whether they had taken the images or not, suggests that it is indeed possible. The photos themselves however were akin to the words in a story; in isolation they have little meaning. When connected together using literary conventions, words become sentences and paragraphs and can deliver a storyline. Similarly the images can be labelled, grouped and categorised. But in both cases it is the reader/respondent who begins to imbue the words/images with meaning as their mind begins to make sense through their interpretations and imagination. Some images led respondents to provide a simple descriptive account of what they saw and these were consistent across respondents. Only if respondents delved a little deeper and began the process of interpretation, could images begin to generate different stories. Other images however, demanded thoughtful interpretation from the start where the participant had snapped a moment which might have had meaning to them at the time, but forced others to reflect more deeply about the message contained therein.

Though the scope of this study was limited, there are potentially rich seams still to mine as mentioned previously and by further extending the study to consider the extent to which student views of learning are coincident with those of their teachers… and if not what the potential implications are for education generally

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