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1. Introduction

A capacity to enable children to learn might logically be seen to lie at the heart of teachers’ jobs and therefore it may be viewed as axiomatic that teachers’ will have sophisticated understandings of how learning happens and to how to best bring it about in others. However there is a body of opinion that holds the view that this is not necessarily the case (Claxton 1990; Athey 1990; Duffy and Jonassen 1992; Drummond 1994; Marton and Booth 1997 and Watkins 2003).

Personal theories may be seen as part of what Dweck (1999) refers to as ‘meaning system’ approaches. They are constructions or schemas that are said to be formed as we operate in the world and it may be argued that they are responsible for guiding our actions: “What I do depends on what my theory tells me about the world, not on how the world really is.” (Claxton 1984, 17). However most of what we know we are not necessarily able to describe (Claxton 1990), a phenomenon referred to by phenomenologists as the ‘natural attitude’ and therefore many of these personal theories exist at the edges of consciousness and are therefore said to exist at an implicit level.
In this study Interpretative Phenomenological Analysis (IPA) was used to analyse three interviews with ‘Nathan’ a PE teacher in a specialist Sports College in the South East of England, with a view to revealing his implicit theories of learning.

2. Literature review

In order to establish a theoretical background to this study the following themes will be examined. Personal theories in general; beliefs/ personal theories about learning and finally an overview of learning in Physical Education will be considered.

2.1 - Personal theories

Personal theories are thought to be formed as people experience the world and are said to serve to help them organise their world. These beliefs, personal theories or meaning systems as Dweck (1999) refers to them, form schemas that allow people to make sense of their worlds. This form of personal sense making has a long history in various disciplines (e.g. Kelly, 1955; Guignon, 1983; Merleau-Ponty, 2003) and forms the basis of much research. People may hold these theories consciously or they may exist at the periphery of consciousness in which case they said to exist ‘implicitly’. The relationship between what is experienced and the way it is experienced is referred to in phenomenology as ‘intentionality’ (Langdridge 2007) but should not be confused with ‘consciousness’. In phenomenology the description of the general flow of life is referred to as a ‘natural attitude’ where we just get on with life and live it (Langdridge 2007). This ‘natural attitude’ is described by Dahlberg et.el. (2008) as a ‘naïve’ understanding and is said to contrast with a phenomenological attitude whereby we reflect upon the natural attitude (Sokolowski
A consequence of this is that much of our meaning systems are hidden from view and therefore there is much to be revealed. In other words we carry constructions that inform our ‘world view’ that we are not necessarily aware of ourselves.

This presents a challenge to the researcher as before implicit theories can be subject to scrutiny they have to be made visible. While there seems little argument that implicit theories will affect how we see the world, their role in determining behaviour is less clear. It may be that they create a framework that serves to foster judgments and reactions that are consistent with that framework (Dweck, et.al.1995). In a study with 37 Taiwanese looking at their beliefs of teaching, learning and science, Chin-Chung (2002, 780) concluded that:

“Although this study showed some evidence that teacher’s beliefs of teaching science, learning science and the nature of science are interrelated, it does not mean necessarily mean that teachers’ beliefs of learning science necessarily influenced the ‘action’ of teaching science.”

This ‘epistemological dissonance’ led Chin-Chung to refer to ‘nested’ epistemologies, in other words that the participants in the study were found to hold contrasting constructions about the three dimensions under review. This disjuncture between different but potentially closely related domains of knowledge has also been noted by (Bereiter and Scardamalia, 1996) who refer to a phenomenon they call,
‘Understanding Newton’s dog’. In this they argue that through study of Newtonian physics a person’s mental model may shift to seeing physics more along the lines of Newton’s thinking or that it may be just a body of knowledge that is recalled for exams and does not impact significantly on the ways they see physics operating in the world.

In terms of the place of personal theories in guiding our actions there is a further argument. Thomas (2007) makes the point that: playing baseball and explaining baseball are in effect different activities. Talking about teaching and the act of teaching many well vary in teachers as well and given that there are well established notions of tacit knowledge Polanyi (1958) and teaching as an intuitive active Atkinson and Claxton (2003) it is likely that much of what we know will exist implicitly.

2.2 - Beliefs/ personal theories about learning.

It may be seen as self-evident that teachers will have views about learning. However given the lack of time that teachers have to reflect on their lessons (Pye 1988), and the kind of ‘performative’ cultures that tend to exist in schools (Ball 2003) the chance to develop deeper understandings about what might be seen to lie at the heart of teachers’ work may be relegated by the perceived need to privilege attendance to other ‘pressing’ demands. In a study with teachers in 4 UK schools Lodge (2002) found that teachers tended to draw on discourses of learning as ‘work’ and learning as ‘performance’ and that a third discourse, that is to say one drawing on richer and more complex perceptions of learning could be discerned struggling against the more dominant discourses.
Of course in a study about learning it is important to consider what ‘learning’ is. ‘Learning’ may be seen to cover a range of phenomena. Bereiter and Scardamalia, (1996) make the point that while term has been extended metaphorically it does not follow that our basic understanding has changed.

“Central to western folk theory of mind is the metaphor of mind as a container. Until recently this metaphor has shaped every theory in which mind figures as a concept. Learning, accordingly, has been conceived or as the introduction and modification of objects in people’s minds, with theories differing as to the processes involved.”

Bereiter and Scardamalia (1996, 501)

They go on to suggest that there are important kinds of learning that cannot be reduced to ‘objects in the mental container’ and that to do justice to them we need to develop a conception of a mind that can act knowledgeably and logically without itself having content.

In proposing an overview of learning (Marton and Booth 1997) draw distinctions between learning as reproduction, which they suggest is about increasing one’s knowledge, memorising and reproducing and applying and learning as seeking meaning which involves understandings, seeing things in a different way and even changing as a person. If the notion of the ‘mind as a container’ is the dominant
metaphor then notions of learning as ‘seeking meaning’ are likely to inform teachers thinking.

2.3- Learning in Physical Education

It is worth bearing in mind that the concept of ‘physical education’ does not necessarily have meaning outside the UK. It is also important to remember that education in current times represents considerably contested terrain which given the wide ranging perspective of the various stakeholders is not surprising. The educational landscape is complicated by the fact that even among the profession there are different ideologies held by PE teachers in the UK. In a wide ranging sociological of PE teachers Green (2003) concluded that PE teachers held a range of ideologies which he categorises as the ideologies of: Health, Sport and the ‘traditional’ team games, an academic ideology, ‘Education for leisure’, ‘sport for all’ and the ‘new PE’ and ‘Sport education’ and the ‘valued cultural practice’ of sport.

Since the education reform act (1988) there has been a trajectory of increasing government involvement in education through policy which might be expected to impact on children’s learning in all subjects. It may be argued that since the education reform act, the polices that have been developed as a consequence of this, such as the National Curriculum, have tended to be presented in a positivist manner and positioned teachers as ‘deliverers’ of educational reform. Or to put it another way, asked teachers to find creative ways to enact the designs of others (Pring 2004). It might be assumed that the policy would have impacted on teachers’
practice and then by implication on children’s learning in PE. However in reflecting on a long term study of Policy in PE, Evans and Penny (1999, 124) conclude that:

“One thing seems certain in physical education, and may well be true of all other subjects, that the louder the surface level of noise of innovation and change, the more the deep structures and basic elements of practice seem to remain basically the same.”

This asks the question if the perception is that teaching has changed so much since the ERA, what is it that has changed and in what ways has this impacted on children’s learning?

3. Method

Personal theories may be described as: “The residual schemata, or unconscious belief systems, left behind in the mind by previous experiences.” Claxton (1996: 45). Because they may be said to exist at the ‘periphery of consciousness’ they need to be discovered rather than invented because they already exist even though participants may not be aware of them themselves (Sternberg 1990). So a method that seeks to understand the participants’ life world or attempts to ‘stand in their shoes’ is required.

3.1 Phenomenological psychology

Phenomenology is a philosophy developed by Husserl that is interested in understanding human experience. When applying phenomenological philosophy to
psychology, the aim is to focus on people’s perceptions of the world in which they live and what this means to them, in other words a focus on the lived experience (Langdridge 2007).

Interpretative Phenomenological Analysis (IPA) requires the researcher to attend to the participant’s life world and then develop interpretations which help to explain what it is like to be that person in a particular context. As such it is ideographic in nature as it is concerned with specific cases in contrast to most psychological research which is concerned with making claims about wider populations and so is said to be ‘nomothetic’ (Smith et.al 2009). Because implicit theories are not readily available even to the participants the data in this study has to be ‘generated’ in the interviews and so the researcher’s role is clearly significant. The researcher needs to be able to attend carefully to what the participant is saying and also develop an awareness of their own preconceptions, which is referred to as reflexivity (Gough 2003, Findlay 2003). This involves what Findlay (2008) refers to as the ‘dance’ between reduction (bracketing out the researchers preconceptions) and reflexivity where the researcher is building interpretations and at this stage of the process must acknowledge their own perceptions, always going back to the participants’ words to ensure that the interpretations are grounded in the participant’s life world or the ‘return to the thing itself’ (Husserl).

In this study where the participant’s implicit theories are sought then there might be said to be a treble hermeneutic. The participant interpreting the questions asked by the researcher who then interprets their response in order to try and understand their
life world, in this instance focussing on their conceptions about learning, and then that interpretation needs to be further interpreted in order to infer the participants implicit theories of learning.

3.2 Reduction / reflexivity

‘Reflexivity is often mentioned as being crucial in qualitative research but rarely taken very seriously (Langdridge 2007, 58). Within a research paradigm where the researcher needs to understand the participants’ life world and with an interview situation then the data in the form of the transcriptions can be said to be actively generated. In such research the researcher is central to the process and reflexivity at the interview stage, as the questions that are asked will be fundamental to the data generating process “Answers are always shaped by the question’s content.” (Dahlberg et.al. 2008, 142). Reflexivity is also important at the interpretation of data stage as what is seen as ‘significant’ and how it is employed will be central to the interpretations that are made. Reflexivity then may be seen as both a problem and solution (Findlay 2003).

The relationship of reduction and reflexivity should not be seen as a vector. That is to say we ‘add’ the reductive interpretation add the reflexive one and then get a ‘resultant’ interpretation. Rather that the reader is able to follow the lines of analysis that the research has followed and also that the researcher is obliged to try and make their own personal theories explicit and in the process may uncover additional perceptions about the understanding of the issues, in this way the process may be seen as one of transparency. “As a general rule reflexivity implies rendering explicit
hidden agendas and half-formed intentions, but not just at the start of the research process- this should be a continuous endeavour.” (Gough 2003, 25). In this research it may be seen that not only is the researcher seeking to reveal the participants implicit theories of learning but through the reflexive process needs to acknowledge their explicit theories and also uncover their own implicit theories about all aspects related to the research.

Central to this process within a phenomenological paradigm is the hermeneutic circle (see figure 1).

Figure 1 - Diagram to illustrate the hermeneutic circle.
In this the researcher must try and get as close to the participants’ life world as possible through attending to their words (top arrow). This is done by the researcher trying to listen carefully and being empathetic at the interview stage and so moving as close to the participant as possible. Then as the interpretations are made the researcher brings the focus back to themselves (bottom arrow) and the literature always checking with the participant’s view as far as possible through staying close to the transcription and continually going back to check their words. Of course the participant cannot be there but in the diagram they are represented by the little ‘p’ in the form of their words in the transcription.

3.3 Doing Interpretative Phenomenological Analysis (IPA).

IPA may be seen as an approach that draws upon phenomenology and hermeneutics (Smith et. al. 2009). Phenomenology as we have seen is philosophical study of experience while hermeneutics is the theory of interpretation. The hermeneutic circle has been described in section 3.2 and is an idea central to IPA which is essentially concerned with the relationship between the part and the whole (Smith et. al. 2009). When analysing the transcriptions: “...it is imperative that each part is understood in terms of the whole, but also that the whole is understood in terms of its parts.” (Dahlberg et.al. 2008, 236).

In this study the interviews were transcribed and notes taken as the transcription progressed as to points of interest (see table 1). The first step was to copy sections of the transcript that were felt to be significant into the spreadsheet in column 4. In a phenomenological study where the participants’ life world is to be established it is
important to stay as close to them as possible and a way to do this is to keep their exact words in mind as much as possible. The second step was to interpret the section of transcription. A useful device can be to start the sentence with “what they are saying is ....” This serves to try and remind the researcher to move as close to the participant as possible. For some sections vignettes were written up, for more detail see section 3.6. The third step was to identify an emerging theme which was used to head up the column 1. As the analysis proceeded and the corpus of data became larger then column 2 was used to subdivide the main emerging theme in column 1.

<table>
<thead>
<tr>
<th>Column 1</th>
<th>Column 2</th>
<th>Column 3</th>
<th>Column 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Emerging theme</td>
<td>Subtheme</td>
<td>Initial interpretation: what they are saying is ....</td>
<td>Section of transcription</td>
</tr>
<tr>
<td>How learning is conceptualised</td>
<td>Mind/ body separation</td>
<td>He is saying that the mind and the body can develop at different rates. He is also saying that the ‘difficulty’ of the lesson was too great and that he needed to make things simpler.</td>
<td>&quot;really they had not developed their mind at the same time as they were developing their body because I was trying to target them at too high a level ... so then I decided to bring them down ... just ..probably..&quot; (Interview 1, 18)</td>
</tr>
</tbody>
</table>

Table 1 – Illustrating IPA process

In addition as part of the process of analyse vignettes were developed line with the hermeneutic circle and an example is given in table 2. In this the process was to select a fragment of the transcription that was felt to be especially significant and then develop a more in depth interpretation. It must be noted that a single fragment
may be significant for several reasons and so in relation to the themes identified in the main analysis several lines of thought might be developed. The next step was to start to uncover my own implicit theories through writing a reflexive response. Finally, implicit theories of learning might be inferred. It is important to see this as an iterative process as the process of coming back and reconsidering the analysis reveals new insights both in terms of making inferences about implicit theories and also developing deeper awareness of the researcher's fore-understandings.

<table>
<thead>
<tr>
<th>Transcription extract</th>
<th>Chris</th>
</tr>
</thead>
<tbody>
<tr>
<td>“Right…In your mind are the projects of helping….children go up levels…if you like …and for example learn through P.E. …are you happy that they are congruent?”</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nathan</th>
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<tbody>
<tr>
<td>“I feel that they work together brilliantly…I have one fear about it (Kent assessment)…and that is moving between activity areas within a year plan every 6 weeks am I not going to be just knocking back children from the level that they had achieved within the previous 6 weeks as they move on to the next 6 weeks…will they be returning back…. to the stage that’s they were at…..I feel that because… of the way that I am teaching, in order to try and develop an understanding of the evaluating and improving aspect….I think that they should be able to take that no matter what and apply it to the next activity area….then what they will fall back on possibly is their performance …acquiring and developing….selecting and applying certainty…..so in terms of developing learning …and then with PE…I feel that it does move forward …but I wonder what will happen when it gets to that point at the end of the 6 weeks…that is something I will need to find out what will happen.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>First interpretation -applying the reduction. “What he is saying is ….”</th>
<th>Nathan</th>
</tr>
</thead>
<tbody>
<tr>
<td>…that in effect the ‘level’ they can qualify for is related to the activity although that is not the principle enshrined in the assessment framework</td>
<td></td>
</tr>
<tr>
<td>…is that he is assuming that there is a causal link between teaching and learning,</td>
<td></td>
</tr>
<tr>
<td>… that his teaching will allow children to be ‘developing’ understanding of evaluating and improving</td>
<td></td>
</tr>
<tr>
<td>… the children should be able to transfer competence into other areas due to the thematic approach he is taking</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Reflexive response</th>
<th>Nathan</th>
</tr>
</thead>
<tbody>
<tr>
<td>This seem so obvious to me. I believe that learning is related and dependent on context. It has to be about learning something.</td>
<td></td>
</tr>
<tr>
<td>This strikes me as almost naïve although I am not surprised. It seems that within a policy landscape as it is that there is an underlying assumption that there will be a causal link</td>
<td></td>
</tr>
<tr>
<td>It seems to me that all knowledge will be idiosyncratic and even though we may share similar understandings so he is assuming a positivist interpretation on behalf of the children.</td>
<td></td>
</tr>
<tr>
<td>I see the transfer of competence as highly problematic. My feeling is that learning is very closely linked to context.</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Inferring implicit theories</th>
<th>Nathan</th>
</tr>
</thead>
<tbody>
<tr>
<td>My feeling is that he is determined to make the KAF work. Implicitly he is saying that learning can be generic and that the transfer of competence in unproblematic?</td>
<td></td>
</tr>
<tr>
<td>Based on his comments I think he assumes he has control over the learning outcomes. Implicitly he assumes that there is a causal link between what he does and what the children learn.</td>
<td></td>
</tr>
<tr>
<td>Not clear in this section how he envisages this understanding developing. It may be that he has a tacit understanding that is aligned with a positivist perspective. There is knowledge and the children have to ‘grab’ it</td>
<td></td>
</tr>
<tr>
<td>Implicitly he sees transfer of competence as straightforward and is surprised when the children ‘don’t get it’ whereas I would see this as a predictable consequence of such an approach.</td>
<td></td>
</tr>
</tbody>
</table>

Table 2 – Vignette illustrating the application of reduction and reflexivity.
3.4 ‘South View’ Specialist Sports College

‘South View’ Specialist Sports College is a school with 1,400 children on roll in the South East of England. ‘South View’ School is situated in a part of the country where year 6 children can choose to take a selection exam which if they pass allows them access to a grammar school. ‘South View’ School is a high school, that is to say a school, where children who have failed the selection test will attend. However there are also a percentage of children who will nominate the school for their child and not allow their child to sit the Kent test.

3.5 ‘Nathan’

Nathan had graduated with a degree in Sport and Exercise Science and then completed his PGCE in June 2004. He was appointed to the school that is the research site for this research in July of 2004 and has been teaching there ever since. In 2006 he became an advanced skills teacher with responsibility for developing ICT to support learning. It was noticeable that it is likely he is a teacher who is held in high regard by his colleagues and this emerged in the references that ‘Tom’, ‘Liz’ and ‘Jon’ all unsolicited and very positive, respectful comments about made him in the course of their interviews.

More recently he has been co-opted onto the team to roll out the new Kent Assessment framework for PE (KAF) and in this role he has had a significant part to play in the development of assessment polices in his school and in the county through leading INSET with other teachers.
Nathan sees himself as ‘different’ to other PE teachers. This first emerged in Interview 1 (28) and was a theme that was developed in interview 3 (155-164).

Nathan; (Laughs) “Yeah .. I just felt ......I don’t know...I think I say that because people have said I take a very different approach to things.” (Interview 3, 164).

It would seem that the essence of this difference is that he sees himself as a teacher who thinks and problematises and is more prepared to experiment than other teachers in the department.

3.6-Research instrument

The interviews with Nathan were carried out in July 2007, December 2007 and January 2009. The initial interview was a semi structured interview which employed a broad sweep of questions with the idea that this would yield a range of themes (See appendix 1). The second interview was an unstructured interview where he was asked to describe a lesson he had taught just prior to the interview and in which he felt that the children had learned really well. The transcriptions from the first two interviews were then subjected to an initial analysis and then a bespoke schedule was prepared for a final semi structured interview (See appendix 2).

When the three interviews had been entered into the spreadsheet the data was sorted first by the emergent themes (column 1) and then a further sort was carried out using the sub theme (column 2). An example may be seen in appendix 3. The next step was to write thick descriptions based on each of the sub-themes and at this
point the hermeneutic circle the interpretations were made more deeply and theory used to inform the discussion.

4. Seeking ‘Nathan’s’ Implicit theories of learning

4.1 Overview of emerging themes

IPA is concerned with enabling the researcher to be able to make interpretations from participants’ verbal reports. While the central purpose of this research is to consider revealing the participants’ implicit theories of learning as the interviews unfolded other closely related themes emerged namely: conceptions about teaching, constructs of assessment, how the participants construct children and the aims of PE. In this paper the focus will be on implicit theories of learning.

4.2 The nature of the metaphors that ‘Nathan employed when talking about learning

Metaphors are a well established feature of language; indeed they may be seen as such a normal and ubiquitous feature of our language that we often do not even realise we are using them (Mercer 2000, Reddy 1978). It has been suggested that the roots of metaphors lie in our sensory perceptions of our relationship with the world (Lakoff 1991). As we have seen in 2.2 it is argued that the ‘mind as a mental container’ metaphor tends to dominate western thinking (Bereiter and Scardamalia 1996). However this metaphor while predominant, has been shown to be inadequate as a means to explain how learning occurs in humans and in the light of more recent thinking has been largely replaced by metaphors where the learner is said to
‘construct’, ‘grow’, ‘form’ or ‘build’ knowledge in some way. So we can conclude that attention to the metaphorical language that ‘Nathan’ employs to talk about learning is likely to yield useful information that will help the researcher make interpretations about his implicit theories of learning.

In table 3 extracts from the three interviews are tabled in order to give the reader an idea of the nature of the metaphorical language that ‘Nathan’ used.

<table>
<thead>
<tr>
<th>Extract from transcription</th>
<th>Metaphor</th>
</tr>
</thead>
<tbody>
<tr>
<td>same way then just trying to cover it and recap it the following lesson (1, 18)</td>
<td>‘Cover it’</td>
</tr>
<tr>
<td>try to give them that understanding (1, 28)</td>
<td>‘give them’</td>
</tr>
<tr>
<td>I would like… to put something in the children’s heads…. I would rather put something in the children’s heads that they are able to make reference to ….&quot; (1, 40).</td>
<td>Put something in the children’s heads</td>
</tr>
<tr>
<td>then came to realise that we need to give the children more foundation …in the verbal and the physical vocabulary of how to do these actions (2, 16)</td>
<td>‘give children more foundation’</td>
</tr>
<tr>
<td>to go through the processes (3,8)</td>
<td>‘go through’</td>
</tr>
<tr>
<td>grasp hold of those 2 key words and those smaller elements ..those bite sized bits and leave behind the rest of it .... (3, 64)</td>
<td>‘Grasp hold’</td>
</tr>
<tr>
<td>And if we don’t give them that understanding or if we don’t try and get it across to them (3, 72)</td>
<td>‘give them understanding’ ‘Get it across’</td>
</tr>
<tr>
<td>Possibly then allowing ...... us as human beings … restricting us as human beings possibly advancing ourselves more so because in giving them that knowledge at a younger age where could they then take whatever they might add on to that in the future ……… (3, 116)</td>
<td>‘giving them knowledge’</td>
</tr>
<tr>
<td>Through these systems .. structures... we have got to give the children more credit for what they know and also the teachers ... the primary school teachers more credit for what they do actually get across to their children (3, 170)</td>
<td>‘get across to the children’</td>
</tr>
</tbody>
</table>

Table 3 - ‘Empty container’ Metaphors employed by ‘Nathan’ to describe learning
In considering the extracts in table 3 it seems we can infer that ‘Nathan’ holds an implicit theory of learning that is essentially congruent with the ‘empty container’ metaphor where knowledge is seen as something that can be transferred, harvested or acquired by the learner. He speaks about ‘getting things across’, children ‘grasping’ things and even that children could be ‘given’ knowledge. However He also spoke at times about learning in a very different way (see table 4).

<table>
<thead>
<tr>
<th>Extract from Nathan</th>
<th>Alternative Metaphor</th>
</tr>
</thead>
<tbody>
<tr>
<td>I take great pleasure…..in ..enabling students in order to become more independent …..thinkers about things..rather than just purely saying…this is how…you do a certain specific skill….and then they go away from there and that is mainly what they succeed in doing….or in some cases not succeeding (1, 6)</td>
<td>‘Independence/empowered’</td>
</tr>
<tr>
<td>work helps them be independent.” (1, 8).</td>
<td>Independent</td>
</tr>
<tr>
<td>I mean you can always put them into game situations where they are having to use it and you maybe condition it ..but..for some students they can come up with better outcomes by themselves..just given more of a challenge (1, 16)</td>
<td>‘they can come up with better outcomes’</td>
</tr>
<tr>
<td>so it becomes more independent learning…so that they are able to move along at their own pace (1, 44)</td>
<td>‘independence’</td>
</tr>
<tr>
<td>“…. then I realised …I needed to build more of a foundation with them especially in their actual both physical and verbal vocabulary. (2, 2).</td>
<td>I needed to build with them</td>
</tr>
<tr>
<td>in control of their own learning .. trying to make … them …empower them ..I still feel it empowers them greatly to be able to try and do independent learning (3, 4).</td>
<td>‘Control of own learning’</td>
</tr>
<tr>
<td>to use the question to get them to think more deeply about those things.” (3, 72).</td>
<td>‘Think deeply’</td>
</tr>
</tbody>
</table>

Table 4 - Alternative metaphors for learning employed by ‘Nathan’

He also spoke about a relay lesson where the nature of the activity would seem to be consistent with a more divergent aims and a more constructivist way of assuming that learning happens.
one lesson just a few weeks ago was a relay baton changeover lesson .. and I just set up a coned area which was the changeover box...and cones at the side and I just said to them you simply get the relay baton from one end to the other and there must be a change over from one person to another in the space and just do it in as quick a time as possible ..and then by the end of that lesson even being year 7, group 2 the middle of our banding ....by the end of it they came one group ...especially came up with a structure where they were not only communicating to the signal for the runner to go off in front of them but they were also actually asking them to put their hand out at the right time for it to be put in there which I was massively impressed with

Table 5 - Description of relay lesson

In table 4.2 and 4.3 he is talking about the kind of practice that might be seen as congruent with pedagogies that would promote active knowledge building or constructivist learning. However it seems that he is not describing learning rather he is describing ‘practice’. In table 3 he is describing the process by which children learn and in that he relies almost exclusively on a ‘learning as acquisition’ metaphor.

In the pilot study it was noted that the teachers tended to talk more easily about their practice than children’s learning. It seems likely that when describing practice ‘Nathan’ draws upon the discourses of divergence and problem solving however when he talks about learning he implicitly sees it as a process of knowledge acquisition congruent with the ‘mind as a container’ metaphor.

In a study with science students Thomas and McRobbie (1999) asked them to describe themselves as learners and the learning processes they use. They found that the metaphors used were credible expressions of tacit knowledge, or implicit theories about learning that the student teachers brought to the course. Furthermore
the metaphors enabled the students and teachers to develop a common language about learners’ processes and their roles as learners. The question to posit is the extent to which ‘Nathan’ uses language about learning in a mindless manner, that is to say draws upon conversational ‘set pieces’ to describe events without considering the underlying messages.

4.3 Contradictory perspectives

An over arching emerging theme that emerged was that of the apparent contradictions that were evident when seeking to establish Nathan’s implicit theories of learning. In section 4.2 we have seen that he employs two quite different ways to talk about how learning will be brought about.

| Researcher – “Yeah yeah.. You have kind of answered this when you are thinking of setting targets for children in lessons what sort of things would you say make a good target?” |
| ‘Nathan’ – “Ahhmm……something possibly more open ended ……….specially at the end of lessons now where I am teaching to a level I will certainly inform as many children as I can what level I feel that they are working at and …….then also give certain targets of what we could do to progress from there …so it is… using key words from the level descriptors ..I use a key word in order to set my target …and doing something specific for the next lesson…….marginally based around key questions that come from the generic learning objectives.” |

(Interview 1, 31-32)

Table 6 - Extract from interview 1

In table 6 there is an extract from interview 1 where ‘Nathan’ is asked about his perceptions of what makes a good target in a PE lesson. In the first part of his response he speaks about something ‘open ended’ which would seem to be congruent with constructions of learning as exploratory, tentative and involving the
learner in ‘discovering’ and ‘constructing’ knowledge which seems to be consistent with a more divergent way of thinking about learning. He then shifts to speaking about aiming lessons to a level and of ‘giving’ targets which would seem to fit more with a reductionist and divergent way of thinking where the aims of learning are ‘given’ rather than constructed by the learner.

In section 4.2 the apparent contradictions between Nathan’s describing learning in terms of a transfer of knowledge and then when asked to speculate on the aims of his practice adopting a discourse more based in ‘independence’ and ‘exploration’ which might be seen more congruent with a more constructivist perspective of learning.

The idea of inconsistencies in personal perspectives has been noted in different disciplines. Within a psychological paradigm it has been noted that beliefs are not necessarily organised in a logical manner but are psychological and with some beliefs being more central and more connected to other beliefs, some of which people may be less inclined to change (Rokeath 1968). It is also conceivable that beliefs may be organised in clusters, allowing incompatible beliefs to be held in separate clusters and thus protected from each other (Green 1971). The notion of holding inconsistent perspectives has also been noted within personal Construct Psychology: “A person may successively apply a variety of construction subsystems which are inferentially incompatible with each other.” (Bannister and Fransella 1986, 16). In a study such as this where implicit theories are deduced from participant’s responses, and so in effect are discovered (Sternberg 1990), the key issue is that
these theories by the very nature of them being implicit and therefore existing at the edge of the participant’s consciousness and so the possibility of incompatibility between theories seems even more likely. If a person perceives they are being inconsistent between various perspectives they may experience a psychological tension referred to as cognitive dissonance (Potter and Wetherall 1987) and try to reduce this dissonance through developing a new self stricture. However if the person is not aware of the contradictions then there can be no dissonance. In this way it may be argued that it is quite possible for a person to hold contradictory theories at an implicit level. In examining ‘lay’ theories in social sciences Furnham (1988) posits the following:

“Because they are rarely, if ever, presented formally, lay theories are frequently ambiguous, incoherent and inconsistent.

That is people can hold two mutually incompatible or contradictory ideas or beliefs at the same time and not be troubled by that inconsistency.”

Furnham (1988, 3)

It must be remembered that the researcher has is to interpret ‘Nathan’s’ verbal accounts. The apparent contradictions as we have seen are not to be wondered at. What is interesting, within an ideographic paradigm, in the nature of these
inconsistencies it is beyond the bounds of this research to establish why ‘Nathan’
thinks as he does.

4.3 Learning as making ‘visible’

It might seem axiomatic that learning is a trajectory of some description. However an
interpretation of the data is that ‘Nathan’, especially when considering issues related
to the assessment framework he tended to speak about it more in terms of making
children’s state of understanding and/or competence visible (table 7).

<table>
<thead>
<tr>
<th>or to utilise the people that are at a higher level in a better way that .... maybe brings out of them the planning for improvement at the higher levels (3, 86)</th>
<th>‘brings out of them’</th>
</tr>
</thead>
<tbody>
<tr>
<td>I would not have bothered to try to get that out of them .. not at year 7 .. and so .. it may be ....try and start the debate at home with my girlfriend ...who is a geography teacher ......the capabilities of children at younger ages ........and ... whether or not ....we are just being .....a term from the past ... gatekeepers (3, 112)</td>
<td>‘get that out of them’</td>
</tr>
<tr>
<td>that’s very interesting to see .. and hear what children are again ... capable of coming up with .. when you do just listen in on their discussions (3, 132)</td>
<td>‘coming up with’</td>
</tr>
</tbody>
</table>

Table 7 – Extracts that suggest ‘Nathan’ sees learning as fixed

It is possible that the increased focus on summative assessment that has
accompanied recent policy initiatives has tended to force teachers to see
assessment as an almost forensic exercise. In reality it may be that the best we can
do is exercise judgement and to use ‘measurement’ as a synonym for assessment
may be inappropriate (Knight 2002). This understandable focus by ‘Nathan’ on
grading leads to the possibility that implicitly ‘assessment for learning’ has been
hijacked and is really assessment for grading.

4.4 Learning as disembodied
‘Nathan’ clearly saw learning as capable of being separated, to the point where grades could be given for different aspects of children’s performance. He made several references to issues related to separating ‘doing’ and ‘thinking’ many of which seems to originate in the assessment framework he was being asked to develop and which he was so clearly enthusiastic about.

<table>
<thead>
<tr>
<th>really they had not developed their mind at the same time as they were developing their body because I was trying to target them at too high a level … so then I decided to bring them down … just ..probably (1, 18)</th>
</tr>
</thead>
<tbody>
<tr>
<td>I needed to build more of a foundation with them especially in their actual both physical and verbal vocabulary (2, 2)</td>
</tr>
<tr>
<td>they managed to develop their vocabulary …. And the choices that they made with the push, tap whip they were able to describe the actions and then also explain how they could be used in a competitive situation to outwit an opponent.(2, 2)</td>
</tr>
<tr>
<td>I do feel it’s .. that any child who is physically competent is going to be restricted ..........beyond that point beyond level 5 …so I do feel I have basically got to bring their mental competence up with their physical and try and match it (2, 40)</td>
</tr>
<tr>
<td>so that is why I came up with the choices challenge ..in order to try and develop their skills of push tap and whip at the same time as developing their understanding and knowledge of it. (2, 50)</td>
</tr>
</tbody>
</table>

Table 8 – Extracts that suggest ‘Nathan’ sees learning as disembodied.

In the extracts in table 8 it is clear he is worried about giving grades and this has impacted on his thinking. Learning may be viewed as ‘embodied’, in other words it is the whole person who learns (Rogers 1983). Where mind and body are separated there is form of dualism or duality which proposes that the mind controls the body, but also that the body can also influence the otherwise rational mind, such as when people act out of passion (Jarvis 2006). Most of the previous accounts of the relationship between mind and body had been uni-directional.
This is interesting in a number of ways. ‘Nathan’ is suggesting a separation between developing skills and their understanding of how these skills might be used. It is instructive to apply this to models of games teaching. In a games for understanding approach learning is seen as contextual’ and essentially ‘situated’ in a particular context rather than starting with a particular skill that the learner tries to acquire out of context of when it might be used. Nathan’s description of the skill challenge which then leads to the learners applying the skill in a game situation might be seen as a skill based approach by stealth (Table 9).

<table>
<thead>
<tr>
<th>Games for understanding</th>
<th>Nathan’s model</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Children play an adapted game</td>
<td>1. Children are presented with a challenge. When to use types of hit in Badminton.</td>
</tr>
<tr>
<td>2. They learn to understand the rules of the game</td>
<td>2. Then looking at how they might be used in a game situation.</td>
</tr>
<tr>
<td>3. They are encouraged to think about what tactics they need to score.</td>
<td></td>
</tr>
<tr>
<td>4. They are encouraged to think about what skills they need to carry out the tactics</td>
<td></td>
</tr>
</tbody>
</table>

Table 9 – Comparing key elements of games for understanding and ‘Nathan’s’ ‘challenges’.

4.5 Implicit epistemological theories

It seems likely that much of what we know we are not able to readily articulate (Claxton 1990) a conception that is consistent with notions of the ‘natural attitude’ so central to phenomenology. In the extract shown in table 10 ‘Nathan’ is asked to reflect on the possibility that learning might be tacit? He says that the child would not
be able to ‘harvest’ some of the assessment levels. This focus on the levels ‘accepting’ more than physical competence might be seen as more inclusive but in ‘Nathan’s’ mind it might be seen as denying the possibility of tacit understanding or knowledge.

CC – “And … what do you think would happen in a situation where the children who for example are physically competent … but aren’t able to articulate that? What would see as the issues there?”

Nathan- “Well .. I see .. I see as the issues .. I really ..feel that you cannot get a student beyond the level 5 based on being ..physical .. physical competence on the whole .. without also their verbal mental competence really .. in any ‘game’ (corrects himself?) .. in any situation .. so in - I do feel it’s .. that any child who is physically competent is going to be restricted ………beyond that point beyond level 5 ..so I do feel I have basically got to bring their mental competence up with their physical and try and match it.”

(2, 39-40)

Table 10 Extract from Interview 2

Interestingly he spoke with great conviction about the possibility of implicit learning (table 11) that has been noted by (Claxton 1998; Seger, 1994)

That having a gap in between one lesson and to another so they go away thinking about what they have done but then as they come in to the next lesson and recap and with.. hopefully if they have been thinking about things because ..they should know that in the next lesson we will be going over it. (1, 20)

Table 11 Extract from Interview 1

This may be seen to represent another contradiction as in this section he acknowledges the possibility of implicit learning although he has rejected the possibility of tacit learning, or competence that the learner cannot articulate when considering the assessment framework and the importance of revealing pupils’ understanding.

5. Discussion

IPA is an interpretative method that seeks to delve deeply and is therefore essentially ideographic, that is to say it is concerned with the particular case and while the issues that this analysis have identified may be deemed to be of interest there is no basis upon which they can be generalised to wider populations. The question in this research is to understand what it is like for ‘Nathan’ when he thinks about learning in PE. There are a number of issues which need to be borne in mind. First it is not possible or even sensible to try and isolate Nathan’s conceptions of learning as they may be seen to be deeply embedded in his personal histories and various contextual factors. In Nathan’s case his explicit concerns are with assessment and teaching strategies that go with that, so in order to develop interpretations about his implicit theories of learning it is important that the researcher pays attention to other factors as well.

A possible weakness with such methods is that they rely on verbal accounts although this might also be viewed as a strength as it is related to a social cognition paradigm because it subscribes to a ‘belief in, and concern with, the chain of connections between verbal report, cognition physical state’ (Smith et al. 1999: 219). It is important to acknowledge that there may well be times where he is being ‘spoken by’ the discourses (Burr 1995). It is also worth considering that ‘Nathan’ belongs to a community of practice and that language plays a central role in the maintenance of that community (Tusting 2005) and so it may be that some of the language ‘Nathan’ draws upon in the interviews is that which has evolved within the
professional communities of which he is a member and that in order to sustain his membership of that community he adopts that language but in a manner more closely related to the natural attitude.

It was evident that ‘Nathan’ is a teacher who thinks deeply about teaching and is concerned to ‘get things right’ and also that he is held in high regard by his colleagues. When considering ‘Nathan’s’ theories of learning the interpretations of the data suggests a number of perspectives. When talking about learning he tended to draw on the mind as a container metaphor, however when talking about his practice he employed a different set of metaphors and set great store by ‘independent learning’ and the importance of children having the chance to make choices. We have already considered Beriteitner and Scardamlia’s (1996) notion of ‘Teaching Physics to Newton’s dog’. In other words it is quite possible for a physical scientist to be able to answer questions and articulate sophisticated understandings about Newtonian physical and yet hold implicit constrictions about physics that are more closely aligned to ‘folk’ theories. So it may be that an explanation of the apparently contradictory positions that ‘Nathan’ held about learning may be explained in a similar manner. In other words when asked to talk about his practice he ‘taps’ into the metaphorical language of ‘independence’ and knowledge as a personal knowledge building process but when that this does not actually inform his practice to the same extent that the assessment framework does.

5.Conclusion
In seeking to reveal ‘Nathan’s’ implicit theories of learning on the evidence of this research we can conclude that he holds a number of theories which may be described as nascent, ill formed and chaotic, but that he does so with no discernable dissonance.

This research sought to reveal ‘Nathan’s’ implicit theories of learning, while it is tempting to suggest reasons for these theories, there is no basis in this method to provide answers and any ‘solutions’ will be conjecture that is not the main point of the process. It may be seen that ‘Nathan’ sees the exercise of teaching as a technical one rather than one where human development is the object. In considering implicit theories of assessment Delandshere (2001) draws a distinction between assessment as ‘technology’ or assessment as ‘practice’ and this may be helpful in considering ‘Nathan’s’ implicit theories which seem to lie predominantly within a ‘technological’ domain.

In a study based on a phenomenological approach the focus is to understand how ‘Nathan’ sees the world and it is clear his role with the KAF frames his thinking. His starting point is making the assessment ‘work’ and it seems that he has approached this in a non critical manner. So it is possible that he will problemitize selectively and that implicitly, in this case the KAF is in some way beyond critique.

6. Bibliography


Rokeach, M (1968) Beliefs, attitudes and values: a theory or organisation and change. San Francisco: Jossey-Bass.


## Appendices

### Appendix 1- Interview schedule interview 1

### Phase 1

<table>
<thead>
<tr>
<th>Question themes</th>
<th>Origin in the literature</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PE biography</strong></td>
<td></td>
</tr>
<tr>
<td>1. What do you remember about PE when you were at school?</td>
<td>Place of their school experiences in shaping perspectives. <em>(John 1996; Brookfield 1995).</em></td>
</tr>
<tr>
<td>2. What did you feel your teachers wanted children to get from PE lessons?</td>
<td>To see how they ‘place’ learning in their own school experience.</td>
</tr>
<tr>
<td><strong>Learning in PE</strong></td>
<td></td>
</tr>
<tr>
<td>1. What do you see as the aims of P.E?</td>
<td>To develop a picture about how participants place themselves within the PE ideological landscape. <em>(Green 2003).</em></td>
</tr>
<tr>
<td>2. Have you always felt this? What caused you to change?</td>
<td></td>
</tr>
<tr>
<td>3. What do you feel are the barriers that prevent children learning in PE lessons?</td>
<td>To gain insight into their perspectives about learning as an ‘entity’ or ‘incremental’ commodity. <em>(Dweck 2000).</em></td>
</tr>
<tr>
<td>4. What sort of strategies do you use to help children learn in PE?</td>
<td>To get a perspective on how they ‘classify’ learning. <em>(Marton and Booth 1997).</em></td>
</tr>
<tr>
<td>5. What kind of things do you do when children fail to learn in PE?</td>
<td>Teachers’ beliefs about their capabilities to help students learn. <em>(Deemer 2004).</em></td>
</tr>
<tr>
<td>6. What factors do you consider when planning lessons?</td>
<td>How do they view learning in PE?</td>
</tr>
<tr>
<td>7. What do you consider to be good targets for children in PE?</td>
<td>Get perspectives on how they ‘place’ learning in their talk about their practice.</td>
</tr>
<tr>
<td>8. We are watching a really good PE lesson. What are we seeing?</td>
<td>Looking at perceptions of ‘mastery’ versus ‘performance’ goals. <em>(Fisher 1995; Schunk 1995; Deemer 2004, Watkins 1999, Dweck, Chiu and Hong 1995).</em></td>
</tr>
<tr>
<td><strong>Theories of teaching</strong></td>
<td></td>
</tr>
<tr>
<td>9. What do you feel are your strengths as a Teacher?</td>
<td>To get an insight into where participants’ place learning is placed in their practice and their aspirations?</td>
</tr>
<tr>
<td>10. What aspects would you be most keen to strengthen?</td>
<td></td>
</tr>
</tbody>
</table>
### Appendix 2- Interview schedule interview 3

| Teaching strategy | • Independent learning  
|                   | • Children exploring- what is the point of that in your view?  
|                   | • Pupil choice? What is the point?  
|                   | • Listening to pupils talking- why? What do you hope to hear?  
|                   | • Asking questions- what is the purpose?  
|                   | • Relationship of skills and discussion?  
| How learning is conceptualised | • Order of talking and ‘doing’ in learning?  
| Learners | • What is it to be successful in a lesson?  
|         | • Physically competent and mentally competent – how does he see the relationship?  
| Assessment | • Purpose of assessment  
|            | • Teaching lessons to levels  
|            | • Transfer of ‘evaluating’ and improving.  
|            | • Children going ‘backwards when activities change  
|            | • ‘Getting the assessment from them’  
|            | • Assessment ask him for ‘surprises’ as he may be only looking for his learning intentions?  
|            | • Key words become the point of the lesson.  
|            | • Levels dictate the curriculum? Is he worried about stuff that falls outside the criteria?  
|            | • Concerned by reductive nature of assessment criteria.  
|            | • Pupils demonstrate understanding is onus on them to demonstrate it or the teacher to find out?  
| Aims of PE | • What is PE about?  
| Planning | • Developing units of work  
| Others | • Tracking sheet  
|   | • Purpose of syllabus?  
|   | • How does he see the primary secondary relationship?  
|   | • Sees himself as ‘different’ to some other teachers  

*This document was added to the Education-line collection on 18 January 2010*