LOW SELF-ESTEEM: ITS EFFECT ON LOW ACHIEVERS LEARNING

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This paper describes an 11-week teaching project with six low achieving year 6 children done as part of my doctoral research (Pendlington 2004). I focused on three mathematical research questions and one connected to self-esteem. This fourth question is the focus of this paper. The paper traces the development of specific affective strategies (affective scaffolding) through the description and analysis of six critical incidents and considers them in the context of the National Numeracy Strategy. The findings suggest that affective scaffolding is important in maintaining engagement and increasing mathematical competence.

SELF-ESTEEM

For the teaching project it was important that I could transfer the literature into practical terms that I could use in the classroom. Psychological literature does not give one clear definition of self-esteem (Robson, 1988). However some themes do emerge. One is that self-esteem is formed from a comparison of self-image and the ideal self Lawrence (1988). Self image and the ideal self is built up through experience, observing what we can do and what society values. The comparison between the two yields self-esteem – a negative comparison leading to negative self-esteem. Papert (1980) described how negative labelling can damage a child's view of themselves as a learner of mathematics. He said that once negative labelling has been learnt, learners self-sabotage future attempts to learn to prove the label they have attached to themselves is correct. Two other research ideas were incorporated into the teaching project. Kavussanu and Harnisch (2000) described components or dimensions of self-esteem – feeling competence, having power over the learning situation, feeling valued by others and having a sense of self-worth. Competence was seen as the salient dimension. Dweck (1999) described learning orientations – ego orientation where learners compared their performance with others and task orientation where learners looked at their performance from task to task. Ego orientated learners were more likely to have low self-esteem. This research indicated that most importantly I needed to increase the children's mathematical competence. I also should help them to concentrate on the task in hand. This paper concentrates on the competence dimension, although task orientation is also a feature of the critical incidents.

THE CHILDREN

The children had worked together as a low achieving group within their class since year 1. During year 5 their targets for Standard Assessment Test (due to be taken at the end of year 6) had been set. Five children were judged at level 3 and one (Mike)

at level 2. The government standard target for year 6 pupils is level 4. The children used a variety of disengagement strategies when they became stuck or thought a task was difficult. Strategies included crying, becoming silent, refusing to participate, kicking out and changing the subject. All the children used negative labelling to describe themselves and their mathematics, comparing themselves unfavourably with their peers. All were anxious to change this situation but appeared puzzled why they could not do so. In response to the question 'What do you think helps people learn mathematics?, the four girls said that working hard was the most important thing. The two boys said that being clever was the most important thing and that you either were clever or not – a more pessimistic situation.

AN OUTLINE OF THE PROJECT

The children worked with me in a separate room while their class teacher taught the rest of their class for the numeracy hour. The total teaching time was 59.75 hours over a period of 11 weeks. I worked with the children for every numeracy hour in that time and they received no additional mathematics teaching from their class teacher. The mathematics content taught was based on the Autumn term content of the National Numeracy Strategy but the lesson format and timetable matched the children's needs rather than those suggested in the Strategy. Each lesson was videoed and the tape reviewed before the next lesson. I also reviewed the data each weekend to help me see patterns. After project the data was analysed first by a 'through review' (watching all 55 lessons in progress over 15 days), then by a detailed analysis of each tape.

CRITICAL INCIDENTS

Six critical incidents spaced throughout the teaching project are described. They show how my ideas changed as the project progressed and how the children's willingness to engage with mathematics increased.

Critical incidents 1 and 2: 2nd week

During a task to correct a misconception – the children saw the difference between 356 and 400 as 56 – the children disengaged when they repeated their error. This disengagement consisted of a series of behavioural patterns such as loud complaining and shouting for my help. I responded by commenting on their behaviour before eventually bringing the group back to the mathematics by providing highly didactic mathematical scaffolding. When I looked at the video I was concerned that the children were successfully moving my attention away from mathematics.

As a result of this task I decided to intervene affectively at the beginning of the next lesson. For the task the children would be asked to place a 4-digit number on a number line marked in thousands e.g. place 4235 on a line from 4000 to 5000. This extended their knowledge from placing 3-digit numbers on number lines. My experience of extensions was that the children found extensions of this type difficult.

Before the task began I warned the children that the task was difficult and that they should expect problems. The task proceeded without behavioural interruptions, the children remaining on task throughout. When Mike made an error, he self-corrected, the children simply showing interest in why the confusion had occurred. At the end of the task I pointed out their success.

The children's responses in these two tasks were very different. In the first task they made an error when they thought the task was easy and their expectations were dashed, lowering self-esteem. This change caused them to disengage. In the second task they succeeded when they thought the task was difficult, their self-esteem rose and they remained engaged. I checked this idea during the next two lessons and the same pattern became evident – when I prepared the children for the task they remained engaged, when I did not they disengaged at some point. Figure 1 shows the two models – affective elements are shown in bold, my interventions in italics.

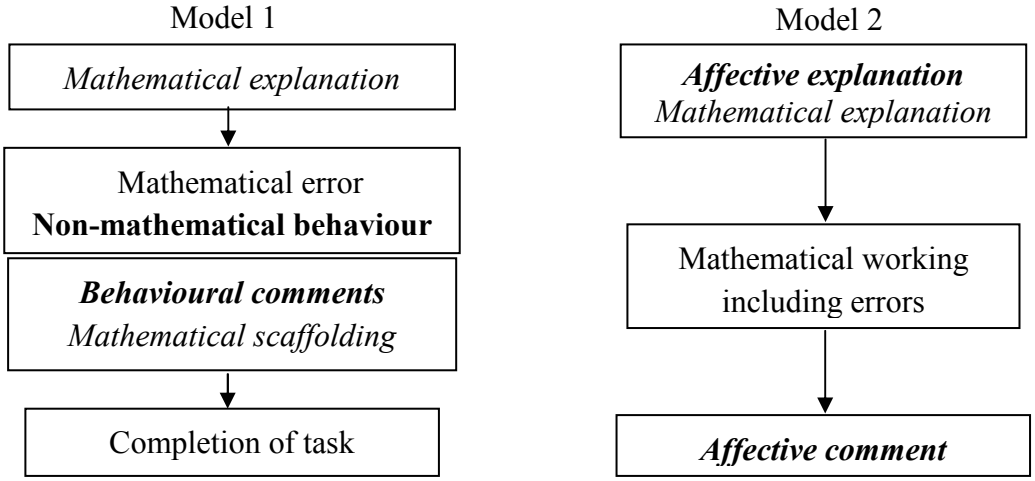

Figure 1: Analysis of affective/cognitive strategies

The figure shows that in model 1 the mathematical elements were interrupted by disengagement but in model 2 uninterrupted engagement was sandwiched between two affective interventions. This second model, called 'the affective-cognitive-affective sandwich' (ACA sandwich), proved to be a more effective strategy which was then used throughout the early part of the project to encourage the children to remain engaged.

Critical incident 3: 3rd week

After reviewing the above incidents, I decided to prioritise affective strategies and to intervene more strongly at the beginning of the next lesson. I used Steven Redgrave's efforts to win his fifth Olympic gold medal as a role model. Using pictures illustrating his effort during the race, I talked to the children about the need for struggle. The children engaged well with this but as soon as I began to talk about the necessity of struggling to do mathematics, they disengaged, putting their heads on the desk and making negative comments. An argument ensued as I insisted they

could struggle and succeed and the children resisted this idea. One by one they agreed to try – Lance very reluctantly.

I called this type of task a 'self-esteem discussion'. It was used at the beginning of a lesson and often formed the first part of the ACA sandwich. This was the seminal task of the project. I vigorously defended my ground and imposed my view on the children. This was different to mathematical discussions where the starting position was negotiated. The use of the word 'struggle' was preplanned and from this point on became part of the classroom language and culture.

Critical incidents 4 and 5: 5th and 8th week

The children's resistance to struggle continued, some children resisting for longer than others. The following two conversations illustrate the different positions the children were at.

I introduced an exploratory task on fractions by warning the children that the task was difficult and they would struggle.

Fran	You want to see us struggle.	CHECKING
SP	Yes. I want to see what you know already.	CONFIRMING
Laura	OK	ACCEPTANCE
Lance	Do we have to?	RESISTANCE
SP	Yes – this morning Lance.	INSISTENCE
Lance	(moans)	RESISTENCE
SP	Tomorrow we can sort out the struggling.	INSISTENCE

The children had struggled with the language pattern *'What fraction of 210 g is 30 g?'* To help them I designed a task where they worked through a variety of language patterns using the triad of numbers 100, 25 and 4. So for the equation $100 \div 4 = 25$, the children gave the question and answer *'How many 4s in 100?'* and *'There are 25 4s in 100.'* I then used a self-esteem discussion to focus on the more difficult algebraic format to come. I wrote the equation *'25 x ? = 100'* on the board.

Lance	Why do we have to do difficult things?	RESISTANCE
Sally	If we only do easy things we don't learn anything.	INSISTENCE

Lance resisted again but this time one of the children provided the affective response. They completed the task successfully and I remarked that what they had found difficult they had done easily. They agreed.

Critical incident 6: 11th week

At the end of the project the children struggled with difficult tasks without affective intervention from me. When completing a difficult number line that required connecting ideas about fractions, decimals, positive and negative numbers, they struggled with elements of the task but persisted until they understood. When they made an error they self-corrected. They accepted that struggle, being stuck and

making errors were a normal part of learning mathematics and did not disengage. My role was as a cognitive scaffolder and this type of affective scaffolding had ceased.

DISCUSSION

During the teaching project my ideas about my role as a teacher changed. Initially I saw the three mathematical research questions as salient. My aim was to improve the children's mathematical competence and so raise self-esteem. Early in the project the self-esteem research question became salient as I introduced affective strategies to encourage the children to engage with the mathematics and to remain engaged throughout the lesson. As well as using mathematical scaffolding I scaffolded them affectively. Looking back, I realise that I had used affective scaffolding before but at a subconscious level. Raising affective scaffolding to the conscious level and the use of specific affective strategies, such as the ACA sandwich, self-esteem discussions and the introduction of the term 'struggle' into the classroom ethos, made my teaching more effective. In his post project interviews, Lance described my role in affective rather than mathematical terms saying, 'You wouldn't let us quit'.

A number of researchers have commented on the importance of engagement. Helme and Clark (2001) discussed its *'profound effect on learning outcomes'* (p133). Denvir and Askew (2001), when observing whole class teaching in numeracy hours and noting that some children were not engaged, said that it was a *'key factor in development of children's mathematical thinking'* (p25). My work confirmed these views. Disengagement was a serious obstacle to the children's learning. I came to see the children's lack of engagement as an affective rather than a cognitive issue and so employed affective strategies to solve it. Affective scaffolding was the entry point and the cycle of engagement, success and raised self-esteem followed. As the project progressed, affective scaffolding was faded and the children's self-esteem maintained through improving competence.

Introducing 'struggle' into the class ethos is in line with Dweck's (1999) work on orientation. The emphasis placed on struggle caused the children to concentrate on the task rather than compare their performance with other children. Their patterns of helplessness when stuck disappeared as they learned that they could struggle successfully with a task.

Most primary teachers work within the context of the National Numeracy Strategy (1999). How does the idea of affective scaffolding match the ideas presented the Strategy? The Strategy makes one statement about confidence. In the section on pupils with special needs (page 23) it says *'Learning to work independently with increasing confidence is important for these pupils but it has to be introduced slowly, cultivated deliberately and rewarded.'* However, the general tenor of the Strategy with emphasis on good pace and targeting individuals in whole class question and answer sessions, seems to contradict the statement. We also need to ask whether the Strategy sees struggle as a normal part of learning. Straker (1999) in her paper about the Strategy discusses the benefits of whole class teaching. She says that

all children benefit from this kind of direct contact with their teacher. One aim of whole class teacher is given as *'keeping the strugglers up with the rest'* (page 43). The Strategy says that problems will be prevented if teachers take action to prevent later struggle. In both these instances struggle is seen as a problem to be avoided rather than a normal part of learning. Giving up - not struggle - is the problem. Mathematics is challenging and if we infer otherwise we run the risk highlighted by Dweck of children developing a helplessness pattern when they get stuck.

It is important to ask whether this approach using affective scaffolding is possible and justifiable bearing in mind the current pressures on teachers to cover the curriculum in a given time and to make sure children achieve government targets in SATs results? For the children in the project group, affective scaffolding produced positive results not only in the group situation but also when they returned to their class. Their teacher said that they *'always had their hands up'* and that their general work in class had improved, particularly reading. Five out of the six children achieved the government standard (level 4) in their SATs. Only Lance achieved level 3. Mike achieved a score that placed him in the middle of his year group.

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