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ABSTRACT

Starting from the idea that even well-intentioned teachers often undermine girls' confidence in gender-sensitive areas of school curriculum, this paper outlines methods that might be used to enhance this confidence. It presents impressions from a 1-year observation of a class of 10-year-olds in a British school as part of a project called Group Work with Computers. The task observed involved Logo, a computer package whereby children program a "turtle" to move around a screen leaving a trail and thus drawing. Although the task was based on computing, a field seen as essentially male-dominated, girls showed gains in both confidence and achievement as the year progressed. Those positive results are attributed to the fact that: (1) emphasis was given to process rather than outcome; (2) unfamiliarity was tackled by letting children take as long as they needed over any task; (3) any competitiveness was side-lined by the emphasis on cooperation; and (4) although the teacher was to some degree the evaluator, the responsibility for evaluation was shared much more by the group. The paper concludes by noting that challenging work in subject areas traditionally seen as male domains could have positive effects for both girls and boys, and not only promote equal opportunities but also enhance learning. Contains eight references. (AA)

Enhancing Confidence in the Gender Sensitive Curriculum

The paper outlines methods that might be used by teachers to enhance the confidence of girls in gender sensitive areas of the school curriculum. It draws on the concepts of attribution theory and learned helplessness citing evidence from a more detailed and wider ranging case study on gender which took place over two years in an English primary school.

Much is written and said about girls 'lacking confidence' especially in gender sensitive areas such as science, maths and technology. It may be true to say that this is an inevitable product of sexism at all levels in our society, but this analysis can only be a starting point for teachers who want to take some action now. The view put in this paper is that even well intentioned teachers often undermine girls' confidence, but with a change in approach they can play the much more positive role of defending that confidence against the odds. The findings are based on a wider ranging study of gender issues (Pryor, 1993); Piper & Pryor, 1994), where for a year I studied a class of ten year olds in an English school taught by Sally Potter (fictionalised name) as part of a project called Groupwork with Computers Project, funded by the Economic and Social Research Council

Children's beliefs about the causes of their difficulties have a major bearing on how they cope with intellectual challenges. Those who believe that controllable or short term factors are responsible tend to respond with increased effort, whilst those who attribute the problem to stable, uncontrollable factors, particularly insufficient ability, respond with a marked deterioration of effort (Weiner, 1984). As a result, subsequent attempts only confirm the feeling of helplessness and the process takes on the form of a spiral; this effect is called 'learned helplessness' and under most circumstances is a feature of girls' rather than boys' behaviour. This is hardly surprising since many studies have found that teachers of both sexes encourage the effect by attributing boys' success to 'flair' and girls' to hard work, boys' failure to laziness and girls' to insufficient ability. The evidence is discussed very fully by the Girls and Mathematics Unit (Walkerdine, 1989) Further light was thrown on the effect by the work of Carole Dweck and her associates (Licht & Dweck, 1985; Dweck et al., 1978).

Dweck and Licht conducted an experiment where one mixed gender group was given the feedback normally given to boys and a second group that usually given to girls. Both girls and boys in the first group attributed their difficulties to lack of effort and in the second group to lack of ability, suggesting not only that the stereotypical responses are learned, but also that they can be unlearned. Licht and Dweck investigated further and found that girls were are likely to suffer from learned helplessness if:

they were of the highest attainment;
the evaluator was an adult;
the task was challenging and unfamiliar;
success was strongly associated with intelligence;
the task had a single right solution;
there was an element of competition.

The implications for the work of the class I studied are far-reaching. Their most intensive work involved Logo, a package where children program a 'turtle' to move around a screen, leaving a trail and thus drawing. This software would seem tailor-made to stimulate learned helplessness in girls: it is a problem-solving type of program with built in challenges, it is also unfamiliar, since it is unlike any other type of work and, in the early stages when the emphasis is on giving commands, the computer understands, it is a closed task, since the machine gives clear messages about what is 'right' and what is 'wrong'. It is achieved through computing, a field most strongly associated with intelligence and for girls one which has the added disadvantage of being seen as essentially male. However, in Sally's class, I noticed that learned helplessness did not occur. On the contrary the girls showed gains in both confidence and achievement as the year progressed.

Opening up the task

One of the children remarked that Logo in their class was more like fun than work. Rather than the more commonly suggested tasks for Logo, which involve taking a turtle round a set course making a specified geometric shape, children were asked to design windmills or space craft or houses. Although they could not avoid error messages when they typed in something the computer did not recognise, they could please themselves what the final product looked like. If was not as they had

originally planned it, they were able either to keep it or to change it. The activity as set allowed them to succeed at whatever they did and to learn about the programming through the practice they received. Also they were always praised by Sally who made a point of reacting positively to all their offerings. She said:

> The desired outcome is not always achieved but knowledge from an equally valuable outcome is just as productive.

Emphasis on achieving a specific result was further reduced a stress on process rather than outcome. A system of groups operated in the class where children took responsibility for organising their own work. On completing a session they filled in evaluation sheets that they had helped to designed: these asked questions mostly about the processes involved in the work, such as how they had worked together and who had taken which roles.

Familiarity

The question of unfamiliarity was also tackled by Sally through her attitude to time: she was prepared to a remarkable degree to let children take as long as they chose over any task, thus allowing them to become more familiar with the medium. This was despite the constraints of the recently imposed English National Curriculum, which substantial research evidence and now an official government report (Deering, 1993) was requiring teachers to put spend more time on the curriculum than was actually available to them, an extreme example of a world-wide trend towards curriculum intensification.

Co-operation

Any competitiveness was also sidelined by the stress on co-operation. Because it is impossible to work easily with more than four children around a computer, the main groups of seven were responsible for organising themselves into subgroups. However a convention whereby this work was then shared with the whole group and subsequently with the rest of the class served to emphasise co-operation. Children working at the computer on the whole welcomed the chance to explain what they were doing to visitors from other groups and the in extensive interviews with children I only had one instance of any competitiveness when a child protested rather mildly at the over-enthusiasm shown by two other groups for their work.

Peer Evaluation

Sally's classroom was so set up to play down her own role as adult assessor. The system of subgroups working independently and then reporting back to the whole group, meant that in the first place the evaluators actually were pupils, both within the working subgroup and when the outcome was being assessed. Even when she interceded in the work in progress, she was anxious not to be seen in the conventional adult authority role:

> I operate a guided participant approach. In practice his means that I become a collaborative partner in both the process and the outcome of the task rather than an onlooker. In this way the learning context becomes more relaxed and less 'test oriented'.

So although the teacher was still in some part the evaluator, the responsibility was now shared much more by the group and she herself was keen to be associated with the group.

Challenge

A possible response of someone committed to girl-friendly education might be that since the nature of Logo appears to encourage learned helplessness in girls, rather than devising strategies to counter the effect, would it not be better just to drop it? Significantly, interviews with the children at the end of the year showed that it actually served to enhance the self image of the girls and particularly the highest attackers, those theoretically most prone to learned helplessness. Licht and Dweck suggest that the answer lies in more challenging work for girls in their primary years.

> It is not unlikely that bright girls encounter very few intellectual obstacles until the later school years; and by the time they encounter any notable difficulty or confusion they have already developed a pattern of achievement-related beliefs that make them poorly equipped to cope with it.
> (Licht and Dweck, 1985 p.135)

Challenging work where girls are allowed and indeed encouraged to 'get it wrong' may have many other benefits. The nub of the argument on the relative 'flair' of boys and girls, is that girls in primary schools are generally seen as conformists. Gaby Weiner neatly presents the issue:

> Some primary school children, usually girls, show indications of anxiety and an extreme desire to conform and please. Frequently

> they develop skills of memory and automatic responses that hide a lack of understanding of basic concepts [the fact that girls are quieter and less likely to cause trouble in the classroom may contribute to their lack of understanding]. Later in school life, as understanding rather than automatic response becomes of greater importance, they begin to fail.
> (Weiner, 1980 p84)

A diet of work which comes easily and allows girls to conform and please their teachers, does not help them in the longer term. When faced with greater intellectual challenges at secondary school girls are in no position to cope, especially in areas perceived as 'not female'. The different rates of biological maturation of boys and girls then serve to emphasise this effect to girls' disadvantage. All this makes a solid case for work such as Logo in primary schools, but only if is presented in a way that does not encourage learned helplessness.

Challenging work in subject areas traditionally seen as male might seem to promote learned helplessness in girls, yet the methods adopted by Sally Potter to a large extent countered this. This blurring of the variables could therefore have had a positive or a negative on either or both sexes. The results would suggest that it had a positive effect for both girls and boys and not only promoted Equal Opportunities but also enhanced learning all round.

Conclusion

This is a short account of a relatively small scale study in a specific geographical context. However in the light of the work of others (e.g. Carole Dweck) in very different circumstances, the chances of the effects being replicated seem high. However, what would above all be needed, would be a school system which allowed researchers and particularly teachers the flexibility and autonomy to create the conditions that were found in Sally's classroom.

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