

The dominator: Classroom computer use by young primary school children

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"The literature suggests that there can be problems ensuring that all children have equal access to a classroom computer. This paper reports on a small-scale, action-research project designed to identify and overcome such problems in a class of five-year-olds. Some surprising results were revealed..."



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It sounds a simple matter to instal a computer in a junior primary classroom as a tool for learning. Some clear rules should ensure equitable use by both girls and boys, shouldn't they? After a relatively short period of classroom computer use by my children I began to have my doubts. My concerns were confirmed when I read some of the literature on the subject.

The literature indicates that there is a gender bias in favour of males with respect to access to and use of computers in the classroom. Boys tend to demand access to computers and generally get their own way. As Alloway (1995) noted in pre-school children, "Computers are 'boys territory' and the girls are physically and verbally driven away." One explanation advanced for this difference in behaviour is that boys and girls undergo different socialisation processes. According to Turkle (1988) the result is that boys tend to be the risk-takers, whereas the girls want to know the rules. She concluded that the training and disposition of boys was suited to the way in which computers are presently formatted for use, but that the socialisation of girls was inappropriate in this respect.

Alloway (1995) also discussed how the socialisation of girls teaches them to be non-assertive as assertiveness could be seen to be unfeminine. The effect is that girls tend to be more reluctant to claim their right to a fair share of computer time. Alloway observed that girls in general seem uninterested in accessing the resource when competing for opportunity meant

entering the fray with an antagonistic group of boys and the adoption of a combative style of interaction. Within this context of aggressive competition, it seemed understandable, if not outright intelligent, to avoid the computer and to select an alternative activity that did not involve physical harrasment.

This also seemed true of my limited observations of the majority of girls in my class, and was consistent with the recent results of a parent questionnaire. Further, I was aware that unorganised free-time computer use could be a solitary and fragmented activity somewhat alien to the group activities that many girls preferred to undertake with their friends.

Given the former Department of Education's (1989) advice about countering sexism in education, the *New Zealand Curriculum Framework* (Ministry of Education, 1993, p.3) statement that, "all students irrespective of ... gender should have the opportunity to undertake study in essential areas of learning", and my determination not to restrict the life chances of girls, I decided to systematically investigate

- (i) what was actually happening regarding computer use in my classroom, and
- (ii) whether I could make some changes to help overcome any difficulties that became obvious.

Method

The action-research study with my class of five-year-olds (and one classroom computer) took place over a period of six weeks. I was fortunate to have the assistance of 'Wendy', a post graduate student, as

an observer and informal interviewer in the classroom during this time.

The study was qualitative and developmental in nature, following a pattern of two observations of an hour or so, an action/intervention phase, and further observations. Data were collected by means of observational field notes and tape recordings of conversations/informal interviews with children. The intervention was formulated in collaboration with Wendy, but I implemented it via a class discussion.

At the beginning of the investigation, a simple rule regarding computer use was in operation. We called it the 'name system'. Children who wished to use the computer had their name tags arranged in a vertical list. When a child finished using the computer his/her name was placed at the bottom of the list, and the child had to wait until his/her name rose to the top of the list again to have another turn.

The story of the observations and intervention

The story of what happened emerges from the transcripts of observations and informal interviews. I therefore include passages from these transcripts to illustrate important features of interactions around the computer, and how children thought and felt about using the computer.

First Observation

The first observation period lasted for about one hour and focussed on who used the computer, particular attention to how often the girls got to have a turn. A summary of the transcript reveals that:

There was a group of 6 children (4 boys, 2 girls) around the computer. A boy was removed for unacceptable behaviour, namely spitting.

One girl got on to the computer, but soon got off again.

A boy got on, while 2 girls and 1 boy stand and wait.

The boy on the computer is distracted looking at the teacher. 1 girl wanders off.

2 boys are left on the computer and access a programme.

1 girl and 1 boy stand and watch, but the boy then wanders off.

The 2 boys on the computer are talking but the computer is really only being operated by one of them.

Something from the computer is printed out.

The 1 girl is still watching quietly.

The 2 boys are deep in discussion, looking at the screen.

The girl continues to stand and watch but doesn't talk. She then wanders off to talk to other girls at an adjacent table.

The same two boys are still on the computer.

The girl moves back, looks at the screen, looks around the classroom, and then walks off.

The two boys continue on the computer with the same boy operating it.

The teacher queries the boys, "Are you finished? You must be."

The computer is vacant.

After organising other children the teacher brings the child who was operating the computer back to exit the programme.

The girls do other activities.

The computer remains vacant as the girls do not monitor whether it is occupied.

Wendy then chatted to the dominant boy:

W: What are you going to do after that?

B: I'm going back on the computer again.

and also to the girl who waited:

W: Are you going on the computer?

G: We have to ask first.

G2: No we don't.

G: Yes we do.

This first set of observations revealed that few girls wanted to use the computer and those who did waited patiently for a turn. One boy took virtually all the computer time, giving no one else a turn, thus totally hijacking the 'name system'. Meantime the teacher was busy with reading groups and was not able to monitor the computer

setting closely.

As a result of this set of observations we decided that a second, more focussed and in-depth period of observation was required. To help with the focussing we constructed a set of questions for the second session:

- "When was the last time you had a turn on the computer? Why, or why not?"
- "How do you feel about that?"
- "What do you do to get a turn?"

We also discussed some possible actions that could be taken to help make access more equitable but decided that we would consider these in greater detail after the second observation period. Ideas that we considered included:

- Having girls only days or weeks.
- Making sure that the girls had the skills to access the programmes, perhaps by employing parent help.
- Put the girls in pairs for support to help their confidence.
- Provide greater encouragement for all children to use the computer.
- Talk about the computer use as a class group, and have the girls express how they felt about it.
- Identify whether the computer programmes are inclusive, or whether they are male oriented, given that they are generally made by men.

Second observation/interviews

The second observation period included chats or informal interviews with four girls and three boys. Excerpts from the conversations provide a flavour for what they thought and how they felt.

G1: I just changed my mind. I don't want it (a turn on the computer) today.

W: Do you get many turns?

G1: No, only two times.

W: Do you stand and wait?

G2: Yes, I only get there for one turn.

W: Who do you wait for?

G2: Him there [pointing to dominant boy].

W: How do you feel about not

having a turn?

G2:[thinking] I would really like a turn.

W: Do you go on the computer often?

G3:No, I don't go on the computer... sometimes I do though.

W: Why don't you go on it?

G3:Because the boys are always on it and I don't get a go.

W: How do you feel about that?

G3:A bit cross.

W: Is it all the boys?

G3:No, just two boys.

W: Do you go on the computer often?

G4:I've only had one turn on it.

W: Why?

G4:Because there's heaps of other fun things to do.

W: Do you go on the computer often?

B1:No, I just watch.

W: Why?

B1:I don't know.

W: Do you like watching, or would you like a turn?

B1:Watching.

W: Do you watch every choosing time?

B1:Yes.

W: Do you know how to use a computer?

B1:[shakes head] No.

W: Do you go on the computer often?

B2:Just once.

W: Why?

B2:Those boys won't let me on.

W: Do you ask for a turn?

B2:Yes, and they say no!"

W: Do you know how to use a computer?

B2:Yes, we have one at home.

W: Do you get on the computer often?

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B3:No. After your turn your name goes to the bottom.

W: Does that work?

B3:No.

W: Do you try to go on at choosing time?

B3:No, because the teacher has to call your name; then you're allowed.

W: Have you tried to get on at any other time?

B3:No, you're not allowed.

The second set of observations, together with these conversations, suggested that it was not only the girls missing out, but most of the boys too. This seemed to result from the actions of one dominant boy, lack of understanding of how the programmes could be accessed, and a misunderstanding about when the computer could be used (an old

set of rules being seemingly firmly fixed in the minds of some children). The observations and views of the children resulted in a redefinition of the original problem. We realised that we were not dealing with a gender issue so much as a broader equity issue created by one dominant male pupil. The question was how to give all children greater access to computer time.

The time had now come to implement an action plan along the lines outlined above.

The Intervention or action plan

I held a whole class session to listen to the children's points of view and introduce some changes into the way we would use the computer. Something that particularly interested me during the initial class discussion

was that the children talked about the 'old rules' but there was no mention at all of dominating personalities. I wondered whether they were scared to mention it, but I doubt that this was the case because five-year-olds are usually so open with their comments. I was left somewhat mystified.

I wrote up a computer 'Rules sheet' with the children and emphasised the need for sharing. For example, Rule 3 stated, "Share computer time" and I added, "NO BIG BOSSES!" I also allocated the children into what I thought would be compatible groups, taking into account gender, power and personalities, and told them which group could have computer access on which day. Finally I explained that as soon as a child had completed a specified task on the computer (related to the class

theme), the child had to go off to another activity.

How did this new approach work out? To gain some idea, two sets of observations were carried out. Wendy observed continuously for 40 minutes during a girls only group day, and I observed during an all boys group day.

The follow-up observations

Wendy noted that the girls seemed to feel in control, were not afraid to approach the computer, and were good at completing tasks and letting the next person on. They were also proud and excited about their printouts. Far more girls than previously approached the computer to watch, although it was not their turn; this happened consistently during the period of observation. The girls were also observed to have more positive interactions with the teacher, possibly because their computer time was free from interruptions from the boys.

During my period observing the boys I noted that the dominant male and a partner were again at the computer. The dominant one soon took control, switched programmes from the one specified, and stayed at the computer. The result was that his partner moved off without getting a turn, and neither did any of the other boys. This behaviour by the dominant boy is apparently not unusual. Alloway (1995), for instance, observed in her study that, "...determined behaviour on the part of the boys was not exercised exclusively against the girls, of course. A pecking order was established among the males with some boys not able to gain reasonable access to the same resources."

Concluding discussion

The problem seemed to keep redefining itself as the result of the various observations and changes. In the end the action plan appeared to be successful in some respects, but not in others. As far as the girls were concerned, the structured time and tasks, together with improved understanding of the rules, resulted in them being far more relaxed about using the computer and much

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keener to do so. Bird (1992) considers that creating a classroom environment that enables girls to take up positions of authority is very important as it creates a space for them to develop their knowledge. It would probably also help if I as their teacher provided a better model by being seen to be using the computer confidently. Female parent helpers giving computer advice to the girls might also be useful.

On the other hand, the strategies I used with the boys obviously need to be reassessed. Although I am not keen on the idea, perhaps I need to number the boys for a while as a means of ensuring that each has a fair share of the computer time. Maybe parent helpers could assist the boys with computer use too. I certainly find it impossible at this early stage of computer use to monitor what is happening when I have the rest of the class to attend to. As Shade and Watson (1990) have noted, "...children have been observed to be more attentive, more interested and less frustrated when an adult is present." If I were able to have parent volunteers assisting in the classroom, then I feel I would need to first advise them about the issue of equity in relation to computer use, and about the role they could play in advising children.

I probably need to somehow tailor computer tasks to fit the learning styles of different children. Neilson and Roepstorf (cited in Hoyles and Sutherland, 1989) point out that, "...the girls tend to orient themselves toward each other; they seem to operate within a 'we' circle... the boys apparently work more individually and orientate themselves primarily towards the object, secondarily towards each other." Fien (1986) has also noted children's variations in learning style. "...children bring different

learning styles to computer activities. As might be expected some children quickly discover new features and explore exhaustively, while others prefer to stay with a few familiar commands." As part of tailoring task better, I probably need to integrate the computer activities even more into the existing curriculum.

Finally, this small piece of action research has given me an amazing insight into my class dynamics, and also into the expectations that I have of myself. I realise that to bring about positive classroom change there is a need for ongoing data collection and reflection. In fact I now see this process as an integral part of curriculum planning and educational practice. Further, I think that there is an important place for the children in this process of creating a good learning environment. I certainly found the experience most enlightening and intend to continue this way.



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