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CiCe
Institute for Policy Studies in Education
London Metropolitan University
166 – 220 Holloway Road
London N7 8DB
UK

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Children's identity in a school culture of computers and multiple voices

Anne-Mari Folkesson
University of Kalmar (Sweden)

Background and overall aim

School politicians in a small Swedish town were concerned about the children's unequal opportunities to gain computer skills. They advertised for teachers to work on a project aimed at stimulating a general development of education, using computers as a learning tool. Two teachers in Grade 1-3 in a compulsory school were selected: in the two classes of 42 pupils the ratio of computer and other digital equipment was one computer per two pupils. I have carried out an ethnographical study (with a variety of instruments) over three years to evaluate the project.

One of the teacher's aims was to develop their work towards letting the children take more responsibility. They also wanted to focus more on producing knowledge, and to allow the children to take a more active role in this. This can be interpreted as providing more opportunities for pupils to 1take the floor1 in the learning environment and become more independent of their teachers, but the teachers' purpose was also concerned with developing the children's social identity. In this paper a study of the pupils' social identity is presented as a comparison with a former study, using the same instrument and measures, which will be described below.

Former research

Computer projects

Many studies about computer projects have been carried out, and in most the conclusions have been negative, concluding that computers are of little use for learning (e.g. Sandahl & Unenge, 2000) or for inculcating moral values (e.g. Colnerud, 1999). Teachers of younger children are often lacking technological skills and are not enthusiastic about using computers (in the present project it might be significant that the teachers involved were volunteers). A tentative result from one computer project discusses the possibility that ICT may enhance rather than change teacher attitude and learning culture (Alexandersson et al, 2000), which underlines the general assumption that the learning environment is more important than technology.

Children's social world in drawings

In a Swedish dissertation, Andersson (1994) has developed a method for comparative cultural research on children's social identity His research review shows that there has been a shift from theorising cognitive development and assessment towards studies of children's cultural life. Moreover he finds a growing interest in cross-cultural studies and also argues for the need for developing relative measures for making comparisons between cultures. In his study three cultures are chosen to represent different child-rearing ideologies: an authoritarian culture in Tanzania, a child-centred culture in a Swedish compulsory school, and an intermediate culture in a more western-oriented refugee camp in South Africa (here called ANC). These respective ideology differences were demonstrated in the children's drawings.

Aims of the present study

In the classes I investigated the teachers explicitly wanted to give the children an even more independent role than is common in Swedish compulsory school (Skolverket, 1998). To what extent this is possible is an important question for school development in Sweden, since this is an aim of the National Curriculum and is often an issue in political debate. Some claim traditional values are best and say that the children will not acquire enough knowledge if this aim is followed, while others say that we must change our schools for the young generation so that they are better prepared to take an active role as citizens. My aim was to study the social identity of the pupils in the computer project and simultaneously to test the instrument itself, to see if it could become an interesting tool for investigations of social identity.

Method

Andersson (1994) asked 9 to 11 year old children in three cultures to make a drawing illustrating *When I'm working in my classroom*. In the instruction the children were told that both themselves and the teacher should be pictured, and to indicate who was who. The author used a combination of qualitative data such as the children's drawings and quantitative measures such as the relative sizes of the people pictured. The measures used in the analysis of the drawings were (Andersson, 1994, pp. 82 - 86):

- coding of size scaling (pupil-teacher ratios)
- coding of detailing
- coding of centrality
- coding of social distance between teacher and pupil.

Details of these measures are described below. This method is new and its validity is open to discussion, but I think it is fruitful to contribute to a development of its construction. As Kvale (1989) says, if you want to validate you have to ask questions. That is why Andersson's tools and coding have been used in this computer-based setting.

Settings

The settings in the former study are explicitly described in Andersson (1994) and will here only be summarised. As mentioned above, the three cultures were chosen to represent different child-rearing ideologies. The author made participant observation, which showed the expected differences in ideologies on a decreasing line from traditional values in Tanzania to child-centred ideologies in Sweden. In Tanzania the pupils did not initiate conversations and they stayed at their desks during the lesson. When they asked questions, they did so in whispers, while in the Swedish school pupils moved about and the teacher encouraged them to speak up and take the initiative to talk. The ANC setting provided an intermediate position.

In the computer project the setting was much the same as in 1Swedish setting1 described above. For most of the day pupils moved about freely - probably even more than in ordinary circumstances as they were free to work in two classrooms and also in other rooms. Only for short moments were the teachers in front of the class: these were when work started in the morning, when thematic work was introduced, when reading a story after lunch-break and when closing at the end of the day. The children rarely experienced

traditional lessons with teacher sitting behind a desk. Teaching was normally carried out as dialogue related to the pupils' own production. Both pupils and teachers initiated talk as in everyday conversation.

The observational data showed that the setting could be described as a culture of multiple voices (Skolverket, 1998; Dysthe, 1996), which means that there is a lot of dialogue not only between a pupil and the teacher, but also that the pupils are discussing each others' work. This differs from a traditional setting which has a more monological character (Linell, 2003). The work I observed was characterised by

- the children's own writings;
- participation and involvement;
- communication with people outside the school;
- children's discussion of each others' productions;
- thematic work;
- production of their own thinking,

and my conclusion is that the school culture also is characterised by 1experimentation *and* a strict organisation1 (Folkesson, Evaluation report, 2002).

Results and interpretation

I now describe the result for each coding and also discuss an interpretation. The numbers of pupils are: 160 in Tanzania, 79 in ANC, 81 in the Swedish school, and 82 in the project school. The number of boys and girls was almost equally dispersed.

Coding of size scaling (pupil-teacher ratios)

In this analysis the relative size between the teacher and the pupil is the focus. The height of the representations of the teacher and the child is measured. If they were the same height, the ratio would be 100%, and if the child was half as big as the teacher, the ratio would be 50%. From this analysis a mean value for each cultural setting was calculated. The assumption was that the size would be more equal in a child-centred setting than in a traditional setting. This coding shows that there was a linear correlation with respect to the chosen settings.

Table 1 Mean value for the relative size of teacher and pupil in the respective culture

Tanzania		ANC		Swedish school		Project school	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
42	41	60	39	82	79	93	73

As Table 1 shows, there is an increasing relative height from the most traditional to the most non-traditional classroom setting. In Tanzania and the Swedish school there seems to be no big gender difference, but in ANC and in the Project School the boys seem to perceive themselves as more equal to the teacher. Andersson explains that in ANC the boys have a higher status - these boys were supposed to take an active role in fighting the apartheid regime. A tentative explanation as to why the boys from the Project school seem

to look at themselves as most equal could be that the computer setting might favour male identity over female. For the girls, the Project school does not yield a more equal identity than that in the ordinary Swedish school.

Coding of detailing

The second coding was used to study the relative degree of details in the pictures of the pupils and the teacher. The drawings were scored on a three-grade scale. Table 2 shows how many percent of the children in the respective settings made themselves more detailed or as detailed as the teacher.

Table 2 Percentage of children making themselves more detailed or as detailed as the teacher in respective setting

Tanzania	ANC	Swedish school	Project school
15	36	55	74

This coding also demonstrates a linear increase in the figures. It is noticeable that there is a bigger difference between the Project school and the ordinary Swedish school than in the last case, and it is interesting to notice that there were no gender differences in the African schools, unlike the two Swedish schools. Andersson supposed that this might be secondary to the other findings as details could probably be related to size of the figures.

Table 3 shows a comparison between the two Swedish schools.

Table 3 Percentage of children making themselves more detailed or as detailed as the teacher in respective setting, with respect to gender differences

Ordinary Swedish school		Project school	
Boys	Girls	Boys	Girls
43	67	88	66

The gender difference in the Project school is opposite to that of the ordinary Swedish school. Andersson did not of course have this comparison, and thought that the result was due to the bigger size of the figures. But this does not explain the gender difference. It may be that there is an important difference between size and details. According to Biel and Torell (1977) children picture what is important to them, and it is possible that size is a matter of status while detail is more about being seen as an individual. In ordinary schools the girls in lower grades seem to be closer to the teachers, and boys are often in opposition to female values (Einarsson and Hultman, 1984). Brutsaert & Bracke (1994) find that boys are negatively affected in such a setting, and Phoenix (2003) also claims that boys are in opposition to school values as being feminine.

Perhaps this means that girls' identity is more confirmed in a feminine setting as classrooms in lower grades often are. However, if this explains the gender difference in the ordinary school, how should we interpret the opposite case in the Project school? It is possible that it might be easier for boys to develop their identities in a computer-based setting where the teacher takes an active interest in modern techniques - they are asserting that they are focusing on work and that they are hostile to a decorative or 'cute'

environment. This result might support the assumption that something in the computer environment is favourable to the boys.

Coding of centrality

Table 4 shows the percentage of children putting themselves in a central position in their drawing.

Table 4 Percentage of children in a central position in each cultural setting

Tanzania	ANC	Ordinary Swedish school	Project school
5	35	70	95

The tendency is the same as above. The children in Tanzania are seldom in the centre of the drawing, and the children from the Project school are nearly all in the centre. A possible interpretation of this result is that the Project teachers have succeeded in giving the children another role than in ordinary schools. Since this coding concerns the children's use of space in the classroom, it might be more obviously related to the cultural setting than a coding for relations between children and adults, but in that case we have to account also for the parents' ideology, as shown in the example of the ANC boys.

Here gender difference is not an issue. Andersson's data showed no such significant differences. In the Project school, only two pupils (both girls) did *not* put themselves in the centre. As these two girls are exceptions, it was interesting to check with observational data for a possible interpretation. The two girls said that they preferred traditional handwriting (beautiful handwriting was highly valued in their mothers' native countries). They also paid traditional respect to the teachers. Perhaps they had not accepted the new way of working in the project, so they perceived and pictured the setting they expected and which was important to them.

Coding of social distance between teacher and pupil

The drawings also showed whether or not teachers were pictured in the traditional position. In Table 5 shows how many teachers were placed in non-traditional positions.

Table 5 Percentage of drawings with non-traditional position of the teacher in the different cultural settings

Tanzania	ANC	Swedish school	Project school
2	24	42	64

Again the tendency is the same. Nearly all the children in Tanzania pictured a teacher in a traditional position. This measure does not contribute to further explanation, but rather to a validation of the instrument. The result seems to strengthen the assumption made above, that the teachers in the Project have an even more egalitarian role than those in ordinary Swedish schools. The statistical findings can also be validated by observation. According to Andersson's observations the teacher in Tanzania was mostly found in the traditional position, but I observed that in the Project school the teachers moved around most of the time.

Finally Andersson found something unique in the Swedish drawings, in which there is only the target pupil beside the teacher. He calls these kinds of portraits *a teacher- pupil dyad.* Compared with the Project school this coding also shows an interesting gender difference.

Table 6 Percentage of drawings with a teacher-pupil dyad in the different cultural settings

Tanzania		ANC		Swedish school		Project school	
Boys	Girls	Boys	Girls	Boys	Girls	Boys	Girls
0	0	13	14	24	42	59	24

In Andersson's study it seemed 1natural1 that the girls should more often stay close to the teacher. We might think of this as an emotional closeness: girls are often seen and understood as 1assistant teachers1. Moreover they often appear to search for this confirmation. The result from the Project school shows that the girl-teacher relation must not be taken for granted, and this result was surprising even to the teachers in the Project. Once again this setting seem to be favourable to the boys.

Discussion

The purpose of this study was to examine children's identity as a pupil in relation to the teacher in a Computer project, and in school cultures of multiple voices. The result shows that the children of the computer project picture themselves as even more equal to the teacher than do the children of the three other settings. This difference is especially obvious for the boys. The boys in the computer setting also seem to be closer to the (female) teacher than the girls.

Is it possible that boys in a free learning environment, where they are supposed to work more independently and less controlled than in an ordinary school setting, also can experience a close relation to the teachers? They can attract the teacher's attention by doing interesting work and having discussions about computers. They can also be helpful, and the teachers are grateful for their help. We often hear of boys being criticised by lower grade teachers as lazy and noisy - such criticism was never heard in the Project school. In the classroom everybody was working. When they were tired the children were free to move around without asking for permission. They could also take a break, take interest in a friend's work or do something playful with the computers. Trageton (2003) found that the boys produced much better writing in a playful environment with a much lower ratio of computers, and in some cases they performed just as well as the girls, which is unusual.

Possibly the physical environment (with many computers, different rooms and not so female-orientated) *in se* appeals more to the boys and can help them to identify themselves with their schoolwork - they do not have to search for an identity in opposition to school values. The freedom to move about could also be positive for developmental needs. This might be especially interesting since boys who identify themselves in opposition to school also may also identify themselves as opposite to society, and thereby be a problem for democracy. For the girls it may be both a loss and a liberation. They do not have to search so much fore closeness but can focus on their work and are also

allowed to play - and they do not have to help the teacher to calm down the boys. But this needs further investigation.

Most evaluations of computer projects in Sweden do not indicate that they matter very much. That may have led to of loss of interest in the development of ICT, but the studies do not seem to have dealt with identity matters. There is, though, an indication that teacher attitude (Alexandersson et al, 2000) and learning culture (Trageton, 2003) matters. Perhaps if we could focus overall identity issues we could discover more of the potentials and restraints of learning cultures. It would be interesting to investigate these matters in different school cultures, both in Sweden and in other countries, and in that way the instrument itself also could be developed.

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