

Body talk. Students' identity construction while discussing a socio-scientific issue.

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Background and aim

In other words, in order to understand learning in science, we need to know much more than whether students have acquired particular scientific understandings. We need to know how students engage in science and how this is related to who they are and who they want to be. (Brickhouse, 2001, p 286)

Both policy documents and research assume that school science needs to be connected to students' everyday life and engagement in societal issues. Workforms as socio-scientific issues (SSI) are described as ways to raise the low interest for school science and to develop youngsters' skills to use scientific knowledge to become engaged citizens. But what is really happening when school science meets everyday life and complex societal issues? What discourses constitute school work when teachers move from traditional school science to complex tasks without right answers and with obvious links to values? How do preconditions for SSI-work differ for students from different backgrounds?

One aim with this paper is to explore discourse orders in students' discussions about a socio-scientific issue. Another aim is to understand how students' use these discourses as a part of their ongoing identity construction in relation to available subject-positions.

Rationale

In this paper we are departing from the idea that learning and identity construction are interdependent on each other (Wenger 2008, p 5). Sadler (2009) describes school science as a community of practice (CoP) where identities and discourses are expressed. He emphasizes the importance of that students get the ability to learn science in a community where they can be central participants and express their identities. An education departing from science culture creates CoP in which the students have small chances to participate and express their identities. But, according to Sadler (2009), if the teaching is framed by issues important to the students themselves, the chances to make meaning, express their identities and learn increase. Sadler bring forward SSI as a way to open up for CoP where students' identities can be expressed and they can use already appropriated discourses.

When Sadler and others talk about SSI as a CoP that could engage students, they are also making assumptions of how students in science class are and want to be. SSI, as well as other pedagogical models, are excluding particular students from participation according to Popkewitz (2004). He means that at the same time as pedagogical models like SSI fabricates e.g.

the “problem solving child” as something desirable, they are constructing the “not-problem-solving child” as a failure. So, what we need to do is problematize what subjectivities or identities those are possible and not possible in the work with SSI. In other words, we would like to add a “power-perspective” to the theory of CoP by discussing possibilities and limitations for available *subject-positions* (Paechter, 2007). When discussing available subject-positions we are doing it from gender, social class and ethnicity perspectives. Gender, social class and ethnicity are in this paper not considered as something you *are*. It is something you *do* through talk and practices (e.g. Paechter, 2007). This doing of identity is situated in a specific context – e.g. science classroom, structured by discourses on normality and available subject positions, which constitute specific identities. The question is which and how subject positions are available for different students in Swedish science classroom today?

Method and research questions

This paper is built on data from two classes at lower secondary school in Sweden. The method used was focus group about knowledge and values concerning body and health. The classes had been working with a SSI on body and health for six lessons and the focus groups were conducted right after this classroom work. Focus group 1 consisted of four girls from what we call Suburban school, a monoethnic school in a suburban, middle class area with high educational level. Focus group 2 consisted of four boys from the same school. Focus group 3 consisted of six girls from what we call Urban school, located in a multiethnic urban area with low socio-economic status, low educational level and high degree of unemployment. Focus group 4 consisted of four boys from the same school. Overall 10 girls and 8 boys participated in one hour long discussions. The study is a part of a larger project with the aim to understand how SSI can be used to increase students’ interest and learning in science.

The research questions in this paper are: a) What discourses dominate the discussions about a SSI and how does this dominance relation fabricate certain subject-positions as available and other as impossible? b) How can the use of discourses be understood from the perspectives of gender, social class and ethnicity? What identities are performed when talking about the socio-scientific issue?

The first step in the analysis was to explore what discourses the students used in their discussions about body and health. In this analysis we found that discourses on school science, body and health and school in general were dominating the talk. The next step was to explore how students in the different focus groups used these discourses in different ways and how this use contributed to ongoing identity constructions regarding gender, social class and ethnicity. By doing this, we understand more of how the students’ discussions about a SSI were situated in a context structured by a) discourses on school science, body and health and school in general; b) possible subject-positions concerning gender, social class and ethnicity.

Results

First of all we want to emphasize that when students discuss a SSI they are switching between different discourses, in this case School science discourse, Body discourse and General school

discourse. It seems to be impossible for the students to talk about this SSI without also talk about body norms and school norms. This result shows the complexity of working with SSI, which also other researchers have pointed out. Our main point is that these discourses are used in different ways depending on how the students construct their identities in relation to available subject-positions. From the empirical data and earlier studies we have identified following subject-positions inside the different discourses: *School science discourse*: Critical citizen, Well-informed individual, Reproducer, The little scientist, Resister; *General school discourse*: Successful student, Easy goer, Resister; *Body discourse*: Healthy citizen, Resister.

We want to stress that these categories are not who/what the students are, instead they are positions that the students take in their "identity doing". The data show that the members of different focus group took different subject-positions when discussing the SSI. The girl group from the Suburban school took a position as Well-informed individual inside the School science discourse, Successful students inside the General school discourse and Healthy citizens in the Body discourse. The girls from the Urban school on the other hand had other subject-positions available; they were Resisters in all three discourses. The boys from the Urban school showed similarities with the girls at the Suburban school, but their connections to the positions were weaker. The boys from the Suburban school took the position as Well-informed citizens in the School science discourse, as Easy goers in the General school discourse and as Resisters inside the Body discourse.

Conclusions and implications

Our first conclusion is that science classroom is contaminated with several socio-cultural discourses, which are constantly present and in need to be related to. It is not possible to understand the science classroom as an isolated entity. Work with SSI might even make it more complex, since societal processes are integrated in the science teaching in new ways. Further, each of these discourses fabricates specific available subject-positions that the students can take. The availability of subject-positions differs for different students. This is an important statement in relation to the hope for a CoP that can involve many (all?) students. SSI will, as any pedagogical model, include some students and exclude other. The subject-positions in one discourse are for example interdependent with the subject-positions in the other discourses, e.g. the Well informed individual in the School science discourse is scarcely compatible with the Resister in the General school discourse. The most important conclusion in this paper is however that availability of subject-positions in science classroom depends on how students do gender, social class and ethnicity. Some positions might threaten the students' identities in terms of these social categories. For example it is obvious that the girls in the Urban school do femininity in terms of resistance – e.g. by laughing at traditional feminine body and health norms. This resistance was spread to the identity as female science student. The resistance for SSI is in other words related to an outsider role in society as a whole. The girls in the Suburban school took a more traditional feminine position concerning school as well as bodily norms. To sum up we go back to Brickhouse (2001) statement about the importance of under-

standing that how students engage in science is related to “who they are and who they want to be”. We need to know a lot more about the students’ identities, both inside and outside school.

References

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