

Changing Practices, Changing Identities: A Study with Students at Risk of Educational Exclusion

*Carolina Carvalho, Sofia Freire, Mónica Baptista, Ana Freire, Mário Azevedo and
Teresa Oliveira
Centro de Investigação em Educação, Faculdade de Ciências da Universidade de
Lisboa (Portugal)*

Abstract

This study discusses how students at risk of educational exclusion can restore their identity and improve learning and scientific literacy. This qualitative research adopts an interpretative orientation. Twenty-eight secondary school students, aged 16 to 20 participated. Data was collected of the interactions between students in lessons, focus group interview and written documents. Data analysis was inductive, consistent with a naturalistic research paradigm, and consisted of uncovering salient patterns, singularities, and themes associated with research aims. Several students, at risk of educational exclusion, value this kind of practice. By changing practice, the learning social context varied, as well as students' identities and their relationships with knowledge, teachers and school.

We live in a complex world, so school has to provide the tools to deal with this. Those who will not succeed in appropriating essential competences will have difficulties with participating in the society and with exercising their citizenship. It is now recognized that those who are denied a quality education have reduced opportunities to participate in the society, to find a job, and have higher probabilities of experiencing discriminating situations. Teaching strategies centred on students that promote inquiry learning might promote competences' development and scientific literacy. This kind of strategies makes teacher/students relationships horizontal and allows students' knowledge validation which might restore their identity as a pupil.

This study discusses how scientific inquiries, with students at risk of educational exclusion, can restore their identity and improve learning and scientific literacy. This is qualitative research, adopting an interpretative orientation. Twenty-eight students, aged 16 to 20, attending secondary classes participated in this study. Data sources were: interactions among students during the lessons, focus group interview and written documents. Data analysis was inductive consistent with a naturalistic research paradigm, and consisted of uncovering salient patterns, singularities, and themes associated with research aims. Several students, at risk of educational exclusion, value this kind of practice. By changing practice, learning social context varied, as well as students' identities and their relationships with knowledge, teachers and school.

Formal education assumes a central role in our current society and is now seen as an essential tool to build a better world as well as to promote individual development (European Council, 2006, 2007; UNESCO, 2000, 2003). Those who do not appropriate

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basic competencies (considered essential to deal and live in a complex, dynamic society) will be excluded from exercising their citizenship right in a responsible and informed way (European Council, 2006; Galvão, Reis, Freire, & Oliveira, 2006; NRC, 2000; UNESCO, 2003). As Koutselini, Trigo-Santos and Verkest point (2004) out

Inclusion and exclusion rest on labelling of different groups students as having strengths and weaknesses in accomplishing the indifferent agenda of everyday schooling. This labelling is based on the assumption that students must undertake the formal curriculum: we never ask how we might adapt this curriculum, or the life of the school, to work for each individual child (p. 15).

Consequently, we are confronted with many cases of school failure, of school apathy and disengagement (European Council, 2006, 2007; Resnick & Perret-Clermont, 2004; Smith, 2006; UNESCO, 2000, 2003). It is urgent to increase the number of highly educationally developed citizens. In Portugal, data is revealing. Many students do not finish basic education and, in 2006, dropping out rate was 39% (CNE, 2007; Ministry of Education, 2006).

In order to reverse this situation, it is essential to develop new pedagogical practices that can challenge not only cognitive issues, but also social and emotional issues related to school knowledge and identity construction (Baptista & Freire, 2006; Baptista, Carvalho, Freire, & Freire, 2007; Cornellius, 2004; Gutierrez, Rymes, & Larson, 1995; Hand, 2006; Nasir, 2002; Solomon, 2007). With this study we aim at knowing how do scientific activities can change student's participating contexts and, as a result, can facilitate identity reconstruction and new ways to relate to school and school knowledge.

Theoretical framework

The school context is the environment within which different approaches to citizenship education are developed. Learning takes place in cultural and social contexts, which are constantly changing and which shape and are shaped by social interactions and practices, and by ways of interpreting oneself and the others within that particular context (Palinscar, 1998, Perret-Clermont, 2004; Rogoff & Lave, 1984). When students learn school knowledge, they also appropriate new ways of perceiving themselves and the others, new ways of relating to others, to practices and to knowledge itself (Freire, Carvalho, Azevedo, Freire, & Oliveira, 2007; Gutierrez, Rymes, & Larson, 1995; Hand, 2006; Lave & Wenger, 1991; Nasir, 2002; Solomon, 2007; Wenger, 1998).

Traditional classroom contexts, built around asymmetrical student-teacher relationships, can influence self identities construction and shape students relationship with school and school knowledge. Relationships between the student-who-knows-nothing and the expert (teacher), who provides students with unique and superior knowledge, who defines what is valid knowledge and learning, as well as valid ways to relate to others and to interpret situation and practices, can favour the development of students' devalued school identities, mostly of those students whose familiar and social backgrounds are most apart from school context (Freire et al., 2007; Gutierrez et al., 1995; Smith, 2006).

On the other hand, by developing practices that encourages students to express their perspectives and knowledge and to learn from it, teacher changes classroom participation contexts and relationships, which can enact more valued identities, as well as a sense of ownership over learning and developed knowledge (Cornelius, 2004; Gutierrez et al, 1995; Perret-Clermont, 2004).

Scientific inquiry involves complex reasoning as well as development of exploration processes that require (and create) curiosity, interest and perseverance (Ask & Klein, 2000; Trigo-Teixeira, 2003). Scientific inquiry can start with a question or a problem for which student's do not know the answer (Ash & Klein, 2000; Woolnough, 1998). For answering it, students have to make new questions, make previsions, formulate hypothesis and/ or create models and theories that have to be tested (Ash & Klein, 2000). The process of conceiving and implementing a scientific inquiry, promotes phenomena understanding as well as the development of processual knowledge, reasoning and communication competencies, among others (Carlson, Humphrey, & Reinhardt, 2003). Besides, many authors (NRC, 1996; Woolnough, 1998) suggest scientific inquiry use in classroom as a way to increase student's engagement with their own learning and to create successful learning situations. More active methodology also promote an open climate for classroom discussion, enhances civic knowledge, engagement on political events and active citizenship (Bauer, Clarke & Dailidienė, 2003).

Methodology

Study context

The study presented here is part of a broader project, which goals are, among others, 1) to identify pedagogical practices that might facilitate educational success in schools characterised by school failure, truancy and high dropping out rates and, 2) specifically, to identify teaching-learning science education strategies that can involve students on their own learning and promote scientific literacy. Taking into consideration the scope of the broader project, our focus has been on a population of students at-risk of dropping out. Also, we assumed an orientation of teachers researching their own practices (Baptista & Freire, 2006; Sagor, 2005).

This study emerges in a changing legislative context, that seeks to reduce educational failure and dropping out. Many laws were enacted with this aim.

- On 2004, a new law was enacted that intend to create special education and training courses (with a professional emphasis) directed to those students who already dropped out school or are at-risk of dropping out (Law n°. 453/2004, from 27th July).
- Curricular reorganization (Law n°. 6/2001, from 18th January) aims at ensuring a basic education for all, with a clear emphasis on those students who are at-risk of educational exclusion.

Both laws make up a proper context to study the impact of new pedagogical practices on students who are at-risk of educational exclusion. Indeed, sciences' curricular reorganization by emphasizing a constructivist teaching-learning strategy and by valuing scientific inquiry use in classrooms facilitates the rehearsal of new (and revised)

pedagogical practices. Special education and training courses related to a profession also demands for new pedagogical practices, which are more adequate to the intended goals.

In accordance with the new science curricular orientations and in the course of her own professional development, science teacher in this study uses scientific inquiry with students who are at risk of education exclusion and who attend a special course of education and training. In the present article, we will discuss the impact of scientific inquiry on the reconstruction of students' school identity and in their relationships with school and school knowledge.

Participants

Participants are 28 students, who attend different school grades (from 10th to 12th) of a special education and training course to become an electrician. Besides regular curricular areas, these students also attend special curricular areas related to electricity. They are all males, with varying ages (from 16 to 20 years old). Generally speaking, they present heavy stories of school failure. Many of them were considering of dropping out school and some others had already dropped out. They were presented with this alternative to regular schooling and this was seen by the school as another solution to make them join the system.

It should be stated that even in this course dropping out rate is still high, mainly in the transition from 10th to 11th grade. So, by the end of the school year, the number of students per class was reduced, as can be seen on table 1.

Table 1. Number of students per school grade

School grade	Number of students per class
10 th	10
11 th	6
12 th	10

Data collection and analysis

A focus group interview (Frey & Fontana, 1998; Krueger, 1994; Morgan, 1998) was carried on, by the science teacher, at the end of school year, with all students from 10th, 11th and 12th classes. Its goals were to explore her students' experiences within the education and training course, and in particular, within sciences classes, and to know the impact that scientific inquiry and the course had on their identity and perception of science education, school knowledge and school.

The teacher performed five focus group interviews, with groups of five to six students. Groups were the same as those formed during classroom activities. So, students from 10th and 12th grades were divided according to two groups and students from 11th grades were used as a single group. Interviews were audio taped and totally transcribed for analysis.

According to an interpretative approach (Erickson, 1986), we used a method of content analysis (Strauss & Corbin, 1990) for studying type and quality of answers and arguments presented. It was an iterative process, of reading and re-reading data so to

uncover patterns, singularities and themes which were associated to the research question. From this process many structures and interrelationships have emerged that were rebuilt in a coherent whole and contextualized taking into consideration student's original context (Denzin, 2002). Categories of analyses considered in this article were: i) reasons for choosing to attend the course to become an electrician; ii) perceptions concerning the course and the sciences classes; iii) school identity.

Results

The goal of the study is to know the impact scientific inquiries have on school identities and student's relationships with school knowledge and schooling. We used an inductive method for analysing data, by which we made emerge categories of analyses. Presentation of results is organized according to those categories.

As already stated, this kind of education and training courses present a great emphasis on a profession. Students keep up with national curriculum, concerning sciences, languages and mathematics, but are also provided with some professionalizing curricular experiences (Law n°. 453/2004, from 27th July). Its professionalizing facet facilitates a more practical kind of teaching-learning approaches, which is a trait highly appreciated by the students and was important for them in taking the decision to attend the course. As some students state:

When I was on the 9th grade I thought that I would do anything else (besides studying). But then I decided to carry on. But I wanted something easy. (A9)

I also didn't like to study those subjects from 5th grade. Then when I was on 7th grade I thought that this kind of courses would be easier. (A1)

I attended 10th grade two times and I thought that I couldn't make it. I needed something that was more practical. (A2)

I have failed quite a few times. Then I thought that it would be nice to attend this course. (A13)

Attending the course is like a straightforward solution for their difficulties with school, an alternative for their constant failure and, for some of them, an alternative to dropping out school. As one of the students says: "I came here [attend the course] for not dropping out!" (A17).

It is like a new opportunity they give themselves to succeed, as can be observed in some of their answers:

It was a little bit difficult [to make the decision to attend the course], because I wish I could attend normal school. But I didn't want to fail anymore. (A12)

I came here [attend the course] because I failed once. And I don't like to fail. (A26)

I was still in 9th grade and I was already thinking of doing something else. Then I decided to keep studies, but I wanted something easy. (A9)

For most of them, their expectations in relation to success were not frustrated. On the contrary, scientific inquiries facilitated the development of a sense of ownership over their learning and knowledge and they became highly involved with activities, as in the dialogue below:

A12: Lessons are different, which is good. They are more practical.

(...)

A7: Yes. As A12 says, if it is more practical, we like it better and we feel immediately better. I like to come here. It is not boring.

A9: Being allowed to make instead of watching is different. It is boring when someone talks over 90 minutes. It just makes me want to misbehave.

(...)

A11: ... As I said, I don't like school very much. But, being allowed to make things... And things that are interesting for us...

A12: It motivates us. We think: I will go to class, because I am going to learn and I like it. I like to learn. It is not boring.

By having the opportunity to plan and implement their own experiences, to become involved with their own learning, to easily understand, to see a connection between science and their own life, to work collaboratively, and to be able to learn, students started to perceive themselves in a different way.

This changing pattern is clear not only for science lessons but also for the overall course. Indeed, their discourses are clearly marked with before and now notions. Before attending the course: when I failed, when I could not learn, when school subjects were uninteresting and too much theoretical, as can be observed on the statements below:

I was not good for studying, studying and studying... Now, I like it better. It is better this way. (A5)

I feel well because now I can do everything and I do not fail. (A2)

I already thought of dropping out school, but now that I am finishing [12th grade], I am thinking to carry on studies. Isn't that strange? (A22)

I already thought of dropping out. But now I want to finish 12th grade so that I can find a better job. (A5)

School worked as a space that didn't allow students to repair their self-trust and to redefine their images about school as well as their own (devalued) identities, as they were constantly confronted with their inabilities and difficulties. By not being able to re-evaluate or repair their identities, they wished of dropping out school. As one student states:

Knowing less and less and hating school more and more. When I was on preparatory school, I thought that it was really bad. Everyday I thought: I won't go. I won't go because I don't want to. And I failed because I missed school. But now, I like it better. (A25)

Now, by attending the course to become an electrician, students feel that they are able to do some things, that they can succeed and their scope of possibilities have even enlarged. Their successful experiences within the course facilitated redefinition of school image and their identities as students started to change.

However, if on the one hand this course works as an alternative to their unsuccessful experiences, on the other hand attending this course still has negative connotations. Being a student from this course means also being a bad student, knowing less, having less capacities and even not taken seriously by others in face of success, as the examples below show:

I think the others do not have us in great consideration, because the course is easier. But, what I want is to finish 12th grade. (A16)

The others do not have good images of us. They think that we won't be able. And we have already failed. (A21)

Sometimes, we hear bad things from the others, but I don't care. (A26)

Being practical and easier were arguments presented by the participating students to justify their option for the course to become an electrician. But, the same arguments were used to justify negative perceptions they think that others students hold in relation to them. This tension can be observed on some of their dialogues:

- A6: I think others see us in the same way. Sometimes we are discriminated as we are the electricians.
 A5: That's true. We always have the feeling of being inferior.
 A3: Stop that. I was on the school table of honour.
 A1: Yes. But that is you. Others see us as the students from the course. If something happens, it is our fault.
- Teacher: What do other students think about you?
 A12: They neither like us nor dislike us.
 A10: That is what you think? I think that they think that we are stupid.
 A7: You do not agree?! But we have failed quite a few times! During meetings they must say: those students they do not learn and exert bad influence over the other!
 A9: Don't exaggerate!

On their dialogues, they negotiate their devalued identities, by introducing new positive elements. However, despite their feeling of success and their (now) enlarged future anticipations, their identities built over their school history keeps on exerting solid constraints on the way they perceive their own success.

Final considerations

This data concerns students at risk of dropping out. Most of them have heavy stories of school failure that made them want to give up schooling. However, when presented with the option to attend the course to become an electrician, they decided to go on with studies.

These students present devalued school identities, which were built from their successive failures at school. These negative images impact on students' relationship with school and school knowledge. School with its own characteristics didn't allow them to escape from those identities. Dropping out emerges as an opportunity to find other spaces where they can repair their identities and develop a sense of self worse (Zittoun, 2004).

By creating new participation spaces and new forms of relationship between teachers and students, science inquiry in the classroom, and a new pedagogical and curricular context, facilitated identity re-construction and the development of new ways to relate to school and school knowledge. During science classes students were able to develop a sense of ownership over learning and knowledge that facilitated the appropriation of new competencies and the emergence of new ways of perceiving themselves as students, who are now able to learn, to plan, to related different knowledge and to solve problems. However, perceptions that students think that others hold about them still places heavy constraints on identity reconstruction.

The creation of new participating contexts that facilitates learning and successful experiences is seen as such as an extremely important step for reconstruction of identity and also an opportunity to develop approaches to citizenship education. These approaches are connected with a number of school characteristics in a variety of learning situations, in particular, student participation in the running of the school, student day-to-day activities in the classroom and experiences within the school. The learning environments provided are increasingly directed towards facilitating the development of knowledge, skills, competencies, attitudes, values, beliefs and motivation to engage in democratic ways and active citizenship and on educational processes themselves. So, it is important to explore new participating contexts in order to understand identity reconstruction and new possibilities for citizenship development.

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