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Independence of learning in transition from school to 6th form college mathematics

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Background

Independent learning - though we might prefer 'autonomous' or 'self-directed' learning - is often mentioned as a key goal of education and it is seen as having considerable potential for improving student performance and increasing motivation. On our ESRC-funded project 'Mathematics learning, identity and educational practice: the transition into post-compulsory education', we are studying the transition of mathematics students from GCSE to AS-level. One of the characteristics of this transition is that of independence, especially in learning, where students are said to go from 'spoon-feeding' to a more 'independent, more adult' pedagogy.

Research Questions

In this paper, we will explore what it means to become an independent learner from the students' point of view. We find that students actually expect and even long for independence and adulthood, but they may receive mixed messages as to what this means, and what is expected of them. Therefore we ask: how are practices and discourses of 'independence' mediating the success or failure of students in transition?

Methods

There is a vast literature on 'independent learning' and authors refer to it with different terms. However, they all seem to agree that independent learning does not mean the isolation of the learner in purely individual work and activity. Våljataga and Fielder (2009) suggest that self-directed learning involves taking control and responsibility for learning and change. However, Glynn (1985) suggests that students acquire generic knowledge about how to learn ('learning to learn') only within a 'responsive social context' which, amongst other things, promotes shared activity between less skilled and more skilled performers, reciprocity and provides supportive and constant feedback. In their study of first year undergraduates, Pokorny and Pokorny (2005) suggest that the unrealistic assumption that students can rapidly become independent learners upon initial arrival to higher education might explain in part the decline in student progression and retention rates.

This paper draws on data from biographical interviews with a cohort of 30 mathematics students, before and after the transition. In these interviews we asked students to tell us about their background, their present and previous experiences at school, and in particular about mathematics, and their expectations for the future and how mathematics might be involved. All interviews were coded for statements that talked, explicitly and implicitly, about independent learning or practices associated with it.

Frame

Our analysis of the data draws from Cultural-Historical Activity Theory (CHAT) perspectives on 'identity in practice' to try to understand how subjective engagement in practices mediate the learner's formation of social identities. In this view, when a student engages or disengages they also thereby construct the self in practice (Holland et al., 1998, Stetsenko & Arievidtch, 2004). This self identity may then be narrated to others in biographical narrative interviews, often mediated by troubles and obstacles. Thereby, we can see 'transitional' subjectivities in students' developing stories of their experiences of themselves, especially their identities as learners of mathematics.

Research findings

Our analysis of the data thus far shows that most of our students at school anticipated college to be more 'grown-up' and that a certain amount of independence learning was going to be expected from them. Once at college, students refer to the transition as a 'jump' that for some entailed a big adjustment. Some of them found particularly helpful the 'Maths zone' at one college where they could get help. Some reported that their teachers were particularly friendly and willing to help. This friendly attitude is confronted with a more hidden message that all this help is available only to those who actively seek it, because in college 'you are responsible for yourself' and teachers expect it. It was clear for us that some students already possessed self-directing skills but for others the responsibility was suddenly too much. This is exacerbated by a generalised belief of mathematics as being an 'unsociable' subject and by teaching practices (especially in mathematics) at both sides of the transition that are not well aligned to develop this independence. Some were able to adjust to the new situation because they found a supportive social group but others, like Gina, found themselves isolated, at least in mathematics because 'in maths it's just work... and there's not really chance to talk to anyone... and I'm too shy to talk to the teacher'. Gina told that at school she had developed a good relationship with her maths teacher, who helped her achieve a good grade at GCSE; however, this later proved to go against Gina, as this teacher's support meant that she did not develop the necessary independent skills.

In summary, we found that some of the 'rules' in relation to independent learning at college are not clear enough to some students and that those who need help in developing these skills can find themselves helpless. This is true particularly in relation to maths, because some students consider it as an 'unsociable' subject where you 'work on your own' and therefore have to be relatively 'independent'. To generalise, problems occur when practices on either side of the transition do not align very well, whether because institutions/teachers 'care too much' or 'appear not to care'.