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The grammar of agency: Studying possibilities for student agency in science classroom discourse

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ABSTRACT

This article provides better understanding of the challenges related to engaging students in science and, operationalises the concept of “agency” in discursive terms for social research more generally. A core dilemma for educators and science teachers is that many capable students, especially girls, learn to do school well by being compliant, rather than doing science well and being agentic. The study draws from classroom discourse in a secondary school in Melbourne, Australia, filmed over an entire unit of work using four cameras and seven audio tracks. The inquiry is concerned with social acts involving three capable students, girls, in their science classroom and their relative positioning as agentic, or responsible for action in the discourse. The micro analysis reveals otherwise hidden moments of positioning where these girls act as responsible and inquiring. However, compliance and the maintenance of social identities as good students is jointly realised, limiting their agentic participation. The small group is shown to operate like a sub-community of practise, implying the need to better understand joint activity in small groups in science. The paper illustrates the potential of the discursive psychological approach for research concerned with human agency.

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1. Introduction

The ultimate aim for the research is transformative education (Kalantzis & Cope, 2008). Crucial in the provision of transformative education is engaging students as active agents. Accordingly, “student agency” is taken as a central concern in education reform. However, the theorisation of agency is fraught with contradictions and conundrums (Arnold & Clarke, 2014). Under some definitions, students’ choice-making has been central to descriptions of agency, even if that choice resulted in acting in a manner that could be described as “passive” (Goulart & Roth, 2010; Sharma, 2007). However, for Noddings (2005), compliance in school settings is counter to transformative educative goals; students valuing high grades and test scores being an inappropriate outcome for transformative education (Noddings, 2005, p. 158). In this paper, I offer an operationalisation of “agency” that draws upon the discursive turn in the social sciences and explore its potential for researching student agency in a classroom setting. The way in which I define agency avoids conundrums created by researcher’s re-descriptions of participants’ action, which could include describing students’ actions as agentic or passive. Instead, I look to the participants’ discourse and the negotiation of meaning as social acts and define a person’s agency as their relative positioning in an immediate conversation as responsible for action.

In science education, researchers have identified a need to better understand the ways that girls’ often gendered identities as good students can impact the choices they make around science (Carlone, 2004; Ford et al., 2006). The purpose of this article, then, is two-fold: to provide better understanding of the problem in science education that many capable students, especially girls, take on identities as good, compliant students and learn to do school well, rather than doing science well; and, to operationalise the concept of “agency” in discursive terms for social research more generally. In this article, I draw on my doctoral study of the positioning of

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three thirteen year-old girls in conversations taking place during their everyday science lessons (Arnold, 2012a), who were identified by their teacher as capable science students. These girls were successful according to the local assessment practises, but rarely contributed to the public conversations in their science lessons. From outward appearances, these students could be described in the terms used by Costa (1995) and Aikenhead (1998) as “other smart kids”, who, despite success at school, fail to engage meaningfully with science.

Researchers have shown that the culture of science is foreign to many students and, particularly, to students belonging to oppressed groups, and that students who do not identify within a scientific trajectory fail to engage meaningfully with school science (Costa, 1995; Aikenhead, 1998). Researchers have also shown that it is possible for students to identify within a scientific trajectory out of school but fail to meaningfully engage with school science (Brickhouse & Potter, 2001). It is also widely accepted that the culture of school science differs from the culture of science. Solutions to this multifaceted problem have been explored. Brown (2004; 2006) studied language in school science as an identity-marker within a programme to better assimilate oppressed students into the culture of science. Other researchers have studied how to better accommodate a broader range of identities and discourses within school science (Calabrese Barton and Osborne, 2001; Calabrese Barton, Tan & Rivet, 2008; Barton & Tan, 2010; Basu, 2008; Roth & Barton, 2004; Yerrick & Gilbert, 2011), advocated transformation of the culture of school science, and implying research into the processes of transformation, negotiation of meaning and identity development in school science is needed (Brickhouse, 2001; Lemke, 2001).

More recently, the concept of agency has been used by researchers concerned with promoting meaningful engagement in school science (Barton & Tan, 2010; Basu, 2008; Goulart & Roth, 2010; Sharma, 2007), reflecting advancements in sociocultural theory that interrogate processes of interaction in which identities are multiple and culture is made and remade through human action. An understanding of “agency” in dialectical relation with “structure” enables an exploration of these processes of social transformation and maintenance and calls for different approaches to social research (Brown, 2009; New, 1994). I address this need by developing discursive tools more suitable for the analysis of moments of interaction in the study of student agency.

An instrumental case is developed to explore the potential of a discursive approach for the study of agency. The three participants are capable students, girls, friends, and each belonging to families from Asian countries, with a strong parental expectation that they do well at school. Like the girls in Sharma's (2007) study of an Indian classroom, the agentic positioning of these girls is not at all obvious in the public domain of the classroom and my concern was that these capable students were not learning science concepts deeply or developing an attachment to science. Video recordings of the girls' classroom conversations across an entire unit of work using multiple cameras, including one trained upon the girls' group and one panning the entire classroom, and audio tracks using a microphone on a lanyard carried by one of the girls and a microphone on their desk, were the main data sources. In my analysis, the micro analytical tools enable me to reveal otherwise hidden moments of positioning, where the girls take responsibility for moving their group discourse into scientific concerns and genre. Attempts at agency in science discourse are identified. Jointly the girls and their teacher act to truncate these moments and their participation is normatively regulated, where compliance and the maintenance of social identities as good students is jointly achieved.

2. Theoretical framework

Discursive psychology provides the theoretical framework employed in this study (Davies & Harré, 1990; Wood & Kroger, 2000). In discursive psychology, cognition is understood as eminent in social (discursive) practises. The analytic tools of ‘positioning’ (Davies & Harré, 1990) and ‘the grammar of agency’ (Arnold, 2012a) are employed for the study of student agency in science as a discursive practise.

2.1. The positioning triad: positioning, act/action, storyline

The smallest unit of analysis in discursive psychology is the ‘social act’. A social act is the relatively determinate meaning, or function, of action, including speech-action. The social force of action taken out of its context of use cannot be reliably gauged (Harré & van Langenhove, 1999a). Within this view, relatively determinate meaning is dependent upon three interdependent aspects of a conversation: the actors' positioning, the conversational storyline and what has been said or done (act/action). In positioning theory these three aspects, known as the positioning triad, enable an analysis of social acts (Harré & van Langenhove, 1999a).

When a person acts from a position in a conversation, they take upon themselves a sense of responsibility and obligation in alignment with that position (Davies & Harré, 1999). A position is a person's psychological location in a conversation, reflecting their relative sense of responsibility in a local moral order of rights and duties. Positioning can be realised through the use of language, but the meaning of language use depends upon the social force of the utterance. An analysis of social acts includes the responses of others in immediately unfolding conversational storylines.

First and second order positioning are both examples of positioning in a conversation as it unfolds (Harré & van Langenhove, 1999b). In this study, first order (performative) positioning is positioning aligned with an unfolding repertoire of joint action. Positions are not contested in first order positioning. Second order (accountative) positioning, or repositioning, has the potential to change the nature of a conversation. In second order positioning, a person's rights and duties can shift subtly and opportunities for the creation of new social identities arise dependent upon whether the repositioning is accepted, ignored or contested by others in a conversation. Third order positioning is the positioning of a person in a retrospective account or narrative, based upon action that took place in another context. The social meaning of action in a third order account cannot be reliably gauged.

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