

## Discourses, identities and learning: implications for the training of student ambassadors in engineering

Gartland, C. ([claregartland@googlemail.com](mailto:claregartland@googlemail.com)) , Hawthorne, H. & McLoughlin, C.M.

The Royal Academy of Engineering, London

### **Abstract**

*Employing undergraduate student ambassadors (SAs) for the delivery of outreach activities has become increasingly popular with higher education institutions (HEIs). Student ambassador and mentoring schemes are widely held to be effective in aspiration and attainment raising work. Research suggests younger students are influenced by 'hot sources' of information including family members and their peer group rather than the official sources of information available to them.*

*At London South Bank University (LSBU), the London Engineering Project (LEP) has used student ambassadors (SAs) to support the learning of younger students (YSs) from secondary schools in economically deprived and ethnically diverse boroughs of London. The aim has been to raise attainment in STEM (science, technology, engineering and maths) subjects and to raise awareness of engineering across under-represented groups of students including girls, Black and Minority Ethnic (BME) students and students from lower socioeconomic groups. The ambassadors have been provided with extended training to facilitate their work and engagement with these young people.*

*The evaluation of the LEP suggests that the project has been particularly effective in challenging students' negative and gendered preconceptions of engineering and science related careers. This is borne out by the fact that the key boroughs where the LEP has worked have the highest numbers of recruits in the country for the new engineering diplomas. In this article we consider the contribution of the student ambassadors, how the training student ambassadors received has impacted on their work and the implications for developments in future programmes. The research draws on approaches used in social psychology and ethnography to explore the nature of the relationships and the learning that takes place between student ambassadors and younger students. We suggest that understanding the relationship between SAs and YSs and the learning that takes place between them is of central importance to the design of ambassador training. The paper concludes that training has been established on a firm basis but suggests that there should be an increased focus on pedagogy, the learning relationship and the quality of the learning that is taking place.*

## Introduction

Student mentors and ambassadors now work for universities across the country to encourage younger students, often from economically and socially disadvantaged backgrounds, to progress to HE. Student ambassador work is perhaps distinct from student mentoring in that it usually implies a less intense relationship between a student or group of students and young people than mentoring. Student ambassadors are generally involved with activities such as educational visits, summer schools and subject based project work. They are also more likely than student mentors to be involved in direct marketing activities such as campus tours.

There appears to be a consensus of opinion that student ambassador schemes and student mentors, or other schemes involving undergraduate and postgraduate students working with younger students, can usefully support the Government's widening participation agenda. The 2005 HEFCE 'Evaluation of Aimhigher: Excellence Challenge Interim Report' identifies that:

'One-to-one contact with undergraduates either through a mentoring or other programme, emerged as a significant factor associated with higher levels of attainment and higher levels of aspiration in both the statistical and the qualitative studies'(p.vii).

This report explains that coordinators commend 'the way in which interaction with higher education students' can 'play a part in breaking down cultural barriers' and the way in which ambassadors can make higher education 'cool in the schools'. A recent evaluation of the student associates scheme (for the Training and Development Agency) is also cited: 'by being close in age and experience, student associates can relate to the issues young people face' (HEFCE, 2005: p.38). However, little research has been conducted into what actually occurs within these relationships and what young people learn from them. Gorard (2007: p.75) complains specifically about the lack of research into schemes involving university students.

There is substantial research about how young people make 'choices' and this points to the importance of informal relationships in providing young people with information. 'Hot' knowledge is described by Ball and Vincent (1998) as the 'grapevine knowledge' that, in their research refers to the information parents have access to. This knowledge is described as 'immediate', and more important to those in their study than 'the 'cold' formal knowledge' produced by schools. 'Grapevine knowledge' is described as 'socially embedded'. The socially embedded nature of these sources appears to be the basis for their being viewed as more trustworthy and reliable than other more removed sources. Various studies (Vincent and Ball, 1998; Ball et al., 2000; Reay et al., 2005; Hutchings et al., 2003) have identified that working class students and their parents rely more heavily on 'hot sources' of information, grapevine knowledge, than their middle class counterparts who may more easily access official or formal sources. Reay et al (2005) provide examples of how particular peers or individuals can influence students' choices; the mature students in their study 'seemed to be swayed by personal recommendation unsupported by other evidence' (154). Stuart (2006) explores how friendship groups are explicitly responsible for providing the information and support necessary for students from lower socio-economic groups to decide to progress to HE in the first instance. This reliance on 'hot sources' clearly limits working class students' horizons; Stuart (2006) describes how vital friendship groups are to 'provide support and knowledge' as there are 'few academic supports in their lives'. She suggests that 'teachers and tutors do not seem to fill this gap' and so it is students' friendships that 'powerfully affect these students' lives' (175). However, it is important to note that in Reay, David and Ball's account of student choice (2005), the most affluent and privileged students and their parents also 'gave primacy to hot knowledge' (152); they were just privy to more elite 'hot sources' than their more working class counterparts.

## The London Engineering Project

Since September 2005, the LEP has been taking engineering activities into London schools to inspire young students in STEM subjects and careers. The project was developed by a cohort of fifteen organisations, led by The Royal Academy of Engineering, with a remit to educate and enthuse young people about engineering; transform schools' science and maths; increase and improve student skills; widen participation and improve social inclusion in engineering and also promote and protect

engineering as a strategic subject. The LEP has engaged with forty Southwark and Lambeth schools and four HEIs. In their work with schools, a team of fieldworkers, mentors and project managers delivered a range of STEM activities. Adult learners, women, black and minority ethnic groups and students from families with no history of engagement in higher education were specifically targeted.

The evaluation of the LEP (Gartland, 2009) revealed that at the outset of the project students' perceptions of engineers and scientists were largely negative. Girls in particular viewed STEM careers as unglamorous. Scientists were overwhelmingly perceived as being male, wearing a white coat and doing a stressful, boring and unglamorous job. Students had a better idea of what some engineers actually do, the information having been acquired through family members. Most however considered that engineers 'fix things' rather than seeing them as professionals. Among girls, the perception was that engineering was for men. As the LEP progressed, students became progressively more positively orientated towards STEM careers. Their perceptions of engineering appeared to shift and there was evidence that some students had grasped the wide range of careers associated with engineering. Students were keen to gain more information, and engineering appeared to have become one of a number of possible futures for some students. This positive shift is further evidenced by the number of students from LEP schools who have taken up the new diploma in engineering.

### **The work and training of student ambassadors**

At LSBU, the LEP has been using student ambassadors to deliver a range of outreach engineering activities to younger students over a period of three years. All SAs at LSBU undergo Aspire (Aimhigher, South East London) student ambassador training. In addition all LEP student ambassadors were given a further two days of training in gender and racial awareness and in promoting positive messages about engineering. The LEP shares target groups with other widening participation (WP) initiatives, particularly in targeting students from lower socio-economic groups. The LEP, however, also specifically targets BME groups and girls as these groups are currently under represented in STEM subjects at university though not in universities as a whole (HEFCE, 2007). It is important to stress that many of the BME students involved in this project also fall into the category of students from lower socio-economic groups. This focus was reflected in the further training provided for LEP SAs, which covered gender and race inclusion. Typically, all LEP SAs were required to consider imparting positive engineering messages throughout the training while learning to deliver the LEP hands-on activities and understanding what makes them inclusive and coherent with the LEP approach. A total of 42 LEP student ambassadors were trained, of which 50% were female and 80% were BME.

Project organizers and fieldworkers view the contribution made by SAs as vital to the success of the project in schools. SAs provide practical support during activities but were also viewed by fieldworkers as good 'role models' for Ys. This article explores the nature of the relationships that SAs develop with Ys during activities, the nature of the learning that takes place and the impact of the training that student ambassadors received. This focus on the relationship and the learning that is occurring within it appears to us to be vital when considering future developments in training.

### **Conceptualising learning**

Critiques of WP work often focus on the lack of progress in numbers of students from lower socio-economic groups accessing university (Gorard et al., 2007). Amongst practitioner research numerical targets have also often become the focus with much research focusing on identifying evidence of shifts in orientation to university following attendance at events and activities. Hodkinson and Macleod (2007) suggest that a focus on the outcomes of learning such as test results, the 'static products of learning', are 'all indicative of seeing learning as acquisition'. This critique also seems applicable to the focus on outcomes in WP research and a focus on outcomes *per se* may not be the most useful way of conceptualising learning in WP contexts.

David (2010) points to the need for a nuanced, 'social scientific understanding of teaching and learning' (6) in relation to questions about WP. Stuart identifies that the debate generally has been 'too focused on classroom activity' and suggests that 'more informal learning such as social learning has not been sufficiently investigated' (2006: 181). The focus of this article is the learning that takes place outside the classroom in the various contexts involving groups of younger students and student ambassadors and the role of social processes in the learning that is taking place.

One way to look at what motivates human beings to engage in interactive and social activity in order to learn is to look at how they see the learning they engage in may be of use to them in terms of social outcomes. One area in which gaining skills may be of use is in fulfilling a desire to become members

of a privileged group. Gartland and Paczuska (2007) suggested that one privileged group to which school pupils may wish to gain access is the one which their student ambassadors or mentors represent; university students. The work of Lave and Wenger (1991) on apprenticeship models of learning appears to be relevant to this analysis. They argue that learning is 'situated' and is a function of the activity, context and culture in which it occurs. Certain learning such as specific beliefs and ways of behaving in a community may serve to give the learners recognition in a 'community of practice'. The expertise gained is key to membership of the group and for social acceptance as part of that group. While the learning itself is valuable, its primary importance is in the status it confers on the learner in enabling them to gain admission to a social group. This way of thinking about learning appears apposite to the learning that occurs within student ambassadors' relationships with younger students. If learning for academic success is viewed not simply in terms of the skills it confers in enabling a school pupil to progress academically but also in terms of enabling a pupil to gain her first foothold in a new community to which she wishes to gain entry, the 'community of practice' of university students, then the dynamics of the social process which motivates that learning, rather than the learning itself gain significance.

There are other useful ways of thinking about the learning processes that take place in these contexts. Hager (2005) is critical of conceiving of learning as participation as he comments that this does not emphasise enough that learning is a process, not something static. He argues that learning is most effectively viewed as a process of construction. Hodkinson and Macleod (2007) suggest that conceiving of learning as construction relates particularly to life history methodologies:

The construction metaphor centres upon the ways in which people make sense of any learning experiences they have – the ways they construct their own versions of what is being learned, and or construct themselves through that learning (5)

They also suggest that participatory views of learning link more easily to ethnographic approaches. Hodkinson suggests that the view of learning as 'embodied construction' and that of 'learning as taking place through participation in learning cultures' are 'mutually complementary, and that they can and should be combined'(6). He suggests that it may be useful to think about 'learning as becoming'; a metaphor that combines these theories of learning.

This metaphor presents learning as a process of developing identity rather than simply acquiring information for particular purposes. If we consider learning as 'becoming' it is useful to consider post-structuralist thinking about subjectivity. Post-structuralists move away from the liberal humanist conception of people as being autonomous individuals, to an understanding of a subjectivity that is created through available discourses and ways of being embedded within particular cultures and moments in history. The ideas of Butler (2004) about 'performativity' may be of particular relevance here. Her work suggests that identity is performed and that we become who we are through the ways we speak and behave - that our identity is 'constituted through action' (David, 2006). Butler identifies the importance of social acts in the process of becoming a subject:

At the most intimate levels, we are social; we are comported towards a 'you'; we are outside ourselves, constituted in cultural norms that precede and exceed us, given over to a set of cultural norms and a field of power that condition us fundamentally. (Butler, 2004a: 45 in Davies, 2006)

If the assumption that student ambassadors are role models for younger students is a correct one, then the implication is that the learning that is taking place is indeed not a process of acquiring information but a process of identification and identity formation. It therefore appears important to explore younger students' conceptions of student ambassadors in order to consider what it is about student ambassadors, if anything, that they are identifying with.

## Methods

The issues discussed concerning the best way to conceptualise learning in these contexts appeared to be key to the research design. As the focus of this project appears to be issues of identity it seems useful then to draw on methods used in social psychology. Social psychology has, in recent years, embraced Foucauldian discourse analysis (Hollway, 1984; Parker 1992; Marks, 1993; Willig, 2001; Wetherell and Potter, 1992; Wetherell, 1998, 2001). The emphasis in social psychology is how Foucault's theories centralise forms of communication as being fundamental to how societies function; peoples' positions, thoughts and actions are presented as being delineated (the extent of this

delineation is much debated) by available discursive resources. This research draws on strategies developed in discursive psychology, particularly Willig's (2001) six analytic steps: identifying 'discursive constructions', 'discourses', 'action orientation', 'positionings', 'practice' and 'subjectivity'. This approach has proved useful in this research as the discourses drawn on by student ambassadors and younger students to describe their relationship and work together have been revealing particularly in terms of investigating the relationships between ambassadors and younger students and how they are 'positioned' by particular activities.

Focus groups/group conversations with younger students and paired interviews or focus groups/ group conversations with student ambassadors were held during activities, during lunch breaks and at the end of the day. The events were very busy and activities filled the available time. The approach developed as a result of these constraints was to sit with YSs whilst they were engaged with activities and hold conversations with them while they worked. These conversations lasted from three to fifteen minutes depending on the enthusiasm of the YSs to contribute and the demands of the work they were undertaking. During the summer school an informal focus group was held with YSs during lunch; this group of students volunteered to participate. The SAs attending these events usually remained behind at the end of the day and again volunteered to participate. Whilst talking to students in groups was a suitable way to proceed due to the time constraints imposed by the structure of the days, there were clear benefits to this approach. Working with others seemed to enrich the accounts of younger students and ambassadors who were able to build on the contributions of others where they may have struggled to speak much about the relationships on an individual basis (Gaskell 2000: 46). This negotiation of accounts will inevitably have impacted on what was said. Gaskell suggests that in group contexts there is 'the development of a shared identity' which he suggests is 'captured in the self description 'we'' (46). Where possible, conversations were recorded and transcribed in full and these 'texts' form the basis of much of this study.

Data for this report was collected in a number of different contexts: activities have been observed as well as group conversations/informal focus groups held during these activities. In total approximately 30 YSs discussed working with SAs, 10 of whom were recorded during group conversations/informal focus groups held during the summer school and the Tube Lines event. Informal focus groups were held at all events with SAs with a total of 11 participating. Focus groups lasted from 15 minutes to 50 minutes depending on the availability of participants. All these recordings were transcribed in full and these 'texts' analysed and emerging discourses traced.

It has also been useful to draw on other analytic tools. Much of the data for this report was gathered through drawing on an ethnographic approach. This approach allowed for field notes to be generated from the informal conversations held with participants throughout activities and to consider para-linguistic aspects of relationships between student ambassadors and younger students. By drawing on ethnography and observing interactions, it has been possible to consider the way that ambassadors and younger students stand, sit and physically orient themselves in relation to the other.

## **The research contexts**

The data is drawn from field notes and transcriptions drawn from different LEP activities. Data was collected through observations and focus groups at three single day events for students in Years 7-10: a STEM day at LSBU, a careers afternoon held by the borough where the LEP were represented and a day organised for younger students by Tube Lines in collaboration with the LEP. Data was also collected during a residential course involving Year 9 students. The final context for data collection was a summer school for Year 10 students at LSBU.

Younger students attending the events were from Southwark and Lambeth schools and the majority of students were BME. There was an equal gender balance at the single day events, though there were more male than female students at the careers afternoon and summer school and more female than male students attending the residential course.

During all these events fieldworkers and project organizers were responsible for the organisation of the events allowing SAs to focus on working alongside YSs on practical engineering related activities. The residential course was slightly different to this in that SAs were also acting as 'supervisors' to younger students and were responsible for a group of YSs.

## Findings: emerging discourses

Six main discourses emerged in SAs' accounts of their work and the accounts of YSs of their perceptions of the SAs after having worked with them.

### Marketing progression to university

Strongly represented in accounts were discourses related to marketing university. This was particularly evident in the SAs' discursive constructions of their work and explicitly referenced in SAs accounts of their work with references such as 'we're selling that' in relation to university study. SAs appeared keen to present themselves as effectively marketing university with being successful even viewed as evidenced by effectively marketing their own course. YSs appeared interested in finding out about university from SAs though they seemed aware that marketing university was part of the SAs work. However, YSs interest in this information varied within the different contexts. SAs appeared most interested in finding out about university during the summer school while during the residential course, some hostility was expressed by YSs to this focus on 'selling' university.

### Promoting STEM and engineering careers

In all contexts SAs discussed and were observed consciously promoting STEM subjects, particularly engineering. This included talking about the creativity in engineering, the available salaries and lifestyles, SAs' own routes into engineering and relating engineering to the interests of the YSs themselves. The extent to which younger students engaged with these messages appeared to vary in the different contexts, though YSs expressed some interest in the information they had been provided to a greater or lesser extent in all contexts.. During the summer school YSs discussed the engineering related subjects studied by the SAs they were working with. This was not so evident during the residential course where YSs did not always know that the SAs were students, referring to them more generically as supervisors.

### Teaching

Constantly present were discourses relating the work of SAs to teaching or to how the work was 'not like teaching'. Discursive constructions of SAs by YSs and the SAs themselves suggested similarities to teaching. SAs frequently talked about how SAs had facilitated them in achieving specific tasks and even how SAs kept them 'on task'. However, there appeared to be essential differences between how the SAs were perceived by YSs and how they perceived their teachers. The fact that SAs are not in a position of authority over them appeared to be important to some YSs. During the summer school one group of YSs commented that SAs 'don't tell us what to do'. However, on the residential course it seemed that a few YSs identified SAs as having a disciplinary role which they viewed with some hostility.

### Role Models

Discourses positioning SAs as role models/aspirational figures for YSs were also present. Across all contexts the SAs themselves and organisers referred to SAs as role models. However, YSs themselves did not always discursively construct the SAs as role models though these constructions were very evident during YSs' accounts of their work with SAs during the summer school and the Tube Lines event. One group of YSs during the Tube Lines event explicitly discussed how finding out about one SA had encouraged them to study engineering and science related subjects in the future. There was another facet to the description of SAs as role models that was widely used by SAs and organisers. This was to explain how it was important to model the behaviour, in terms of participation and engagement with activities, that they wanted to elicit from YSs.

### Gender and Ethnic Identities

There were also discourses relating to gender and ethnic identities and shared (student) identities. When asked directly about the ethnicity and gender of SAs, YSs denied the importance of this. The SAs were however emphatic about the importance of the gender of SAs in challenging YSs' ideas about who can be an engineer. Various accounts were provided by female SAs of female YSs being surprised and curious about their course of study. SAs' accounts also suggested racial and gender identities were significant when first meeting with YSs and developing relationships. This was also evident during observations: SAs with a shared racial and gender background were able to quickly establish close working relationships with YSs when conversations about YSs' future plans and dreams were held. This appeared to be particularly significant during one day events where there was limited time for SAs and YSs to work together. Conversations between SAs and YSs also suggested

that stereotypically gendered focuses of conversation were often drawn on during initial meetings between YSs and SAs such as clothes, hair and football.

#### Student Identities and youth culture

Finally there were discourses relating to shared youth and student identities and friendship. These discourses were not consistently present across all contexts though elements of them were. During the one day activities YSs often referred to their work with SAs as 'fun'. SAs were also described as being more 'in touch' and these terms were echoed by some YSs during the residential course. A group of YSs during the Tube Lines event suggested that they had a shared student identity with the SA they had worked with that made her 'seem like us'. The expertise and experience of the SA combined with her positioning as a fellow student were identified by this group of YSs as important to the relationship they had developed with her. It was during the summer school where YSs worked with the same group of SAs for a week that these discourses emerged most coherently. YSs described SAs as being like 'distant cousins', 'like a friendship'. They again described the proximity in age and positioning of SAs as fellow students as being important to the relationship. One SA suggested that this shared identity facilitated YSs in imagining themselves at university. YSs accounts also suggested they were imagining themselves at university. They discussed how best to cope with difficult lectures and drew directly on advice and accounts provided by SAs in their imagined responses. Also important and perhaps more significant than the age of SAs, appeared to be a shared knowledge of music and sense of style. It is interesting to contrast these accounts of shared identity and 'friendship' with those on the residential course where one SA described how beneficial to sharing information with YSs she felt that developing a 'friendship' would be but suggested that this was unachievable because of her supervisory position.

## Discussion of findings

Discourses drawn from marketing about promoting HE were dominant in conversations with SAs about their work. SAs appeared positioned as marketers of HE, consciously marketing and promoting HE and even their own course and institution. Where SAs had not been able to develop informal working relationships with YSs this was on occasion viewed negatively by YSs. Generally, however, YSs were not hostile to these approaches from SAs though there was some suggestion that they were aware that SAs were marketing university. However, YSs appeared to be willing to listen to these messages from SAs if they had developed positive working relationships with them and identified with them. YSs were, however, less inclined to listen when positive working relationships had not been established.

SAs were also consciously promoting STEM subjects and specific engineering messages. Again these messages appeared to be heard in contexts where SAs effectively developed positive working relationships with YSs. There was also some suggestion that the context of activities and how this affected YSs' expectations also impacted on their willingness to hear these messages. During a STEM careers day, because of the focus of the day as a whole, YSs appeared more focused on acquiring information about engineering careers despite the limited time they had with SAs, than during other days where the focus was not quite so clearly defined. SAs appeared, at times, to be positioned as careers advisers, providing YSs with information about routes into university and engineering careers. The presence of female engineering SAs appears to be important in challenging the normative assumptions amongst male and female YSs of engineering as a male occupation.

Despite some claims to the contrary by SAs themselves, discourses identified during all the activities positioned SAs as teachers to the extent that they were always facilitating and supporting the learning of YSs and, at times, instructing YSs. However, there were important differences. Where relationships between YSs and SAs developed and SAs appeared to become trusted sources of information, SAs were working alongside YSs, encouraging and facilitating them. It also appeared that through this collaborative approach to active engineering related tasks, YSs were able to consider what working in engineering would be like. The SAs appeared to play a key role in enabling some YSs to think about this.

Discourses importantly also positioned SAs as students. YSs appeared to enjoy and respond to the proximity of this positioning of SAs as fellow students. Different contexts appeared to support or undermine this: where SAs work alongside YSs, making and working with them, this sense of proximity appears to have been supported and reinforced. Indeed, there were times when SAs

described how they were modelling the behaviour they hoped to illicit from YSs and this did appear to be an effective strategy in engaging YSs with tasks and enabling YSs to feel confident to relate to SAs. Conversations that developed during this working relationship were often where information about university and engineering courses and careers were shared. Where SAs were positioned differently and given a more didactic status in relation to YSs, this sense of proximity was undermined. It is important to note that the development of relationships appeared to have been most effectively achieved during the summer school where YSs spent a week with the same group of SAs.

The identity of SAs in relation to YSs appeared to be quite important to this sense of proximity; a shared sense of fashion, knowledge of music and sport all appeared to contribute to this shared identity. Indeed this actually appeared to be more significant to YSs than the specific age of SAs, as YSs perceptions of age were closely linked to this shared youth culture. Despite YSs claims to the contrary, ethnic and gender identities seem significant. The knowledge of youth culture that appeared to connect SAs and YSs was often linked to their ethnic identities. There were a number of instances where YSs were more 'comfortable' working with SAs from similar ethnic backgrounds to their own and developed the confidence to talk to SAs relatively quickly, consequently developing positive relationships. This appeared to be particularly significant during one day activities where there was limited time available for SAs and YSs to work together. There may be some gender differences in this. It may be possible to suggest, as found in previous research (Gartland & Paczuska, 2007) that female YSs bond more quickly with SAs than their male counterparts. Some male YSs seemed to take longer to develop relationships with SAs and preferred to work with SAs who they had got to know over a longer time frame. It is interesting to note that when SAs were placed in authority over YSs as supervisors, mirroring relationships YSs have with adults in school, male YSs were keen to distance themselves from SAs perceiving any help they received as a reflection on their level of ability.

The process of working collaboratively with SAs and in their exchanges during this collaboration, there is, perhaps, an opportunity for YSs to join the SAs in their 'performed' (Butler, 2004) identities as motivated university students. This opportunity to try out aspects of a possible future identity, that of university student, appears to be important and there was some suggestion from the research that working with SAs was impacting on the subjectivity of individual YSs and positioning them as future university students, and that SAs had become aspirational role models for YSs. We would suggest that this could contribute to the development of an identity amongst these YSs where progression to HE seems to be a logical and even inevitable next step (Reay et al, 2007). However, the instances that support the claim appeared to be limited to SA interactions with YSs who were already positively orientated to university and further study (Gartland, 2009). It is also important to note that positioning YSs in authority over SAs undermines this opportunity and distances SAs from YSs, making them appear to YSs to be a part of the hierarchical authority in schools. It is also worth noting that there seemed to be differences in terms of YSs openness to possible futures in STEM. The Year 10 students appeared to be relatively fixed in their subject interests. Working with SAs did not appear to change YSs' directions but did appear to reinforce interests for those already considering STEM. There was some suggestion from this research that younger students were more open to considering different possible futures and that SAs could be influential when YSs identified with them.

## **Reflections on training and implications for the future**

The focuses of the training programme undergone by SAs with the LEP can be traced in the discourses emerging from their accounts. The marketing of engineering through a focus on engineering messages is particularly evident. Also evident in their accounts were the benefits of the focus in training on SAs working alongside YSs on practical tasks. This aspect of the training was appreciated by SAs themselves and the collaborative approach promoted during training was evident in their practice.

From data gathered it is possible to conclude that YSs value SAs for the quality of support with tasks that they are able to provide. It appears to be in these contexts that SAs are able to talk to YSs about engineering and promote particular engineering messages. The positioning of SAs as role models also appears most likely to be effective if SAs are able to work collaboratively with YSs and facilitate their learning on specific tasks. In these contexts they may then be able to provide YSs with information about routes into university and engineering.

The focus in training on gender and race also resonated, particularly in SAs accounts. SAs referred to

this training during focus groups. Providing female YSs opportunities to work with female SAs appears to be very significant in the context of engineering. Matching YSs with SAs in terms of ethnicity and gender seem to be worthwhile, especially in contexts where YSs are only with SAs for a short time. The SAs in this study were often from similar socio economic backgrounds and from the same area of London as YSs and these shared aspects of their identity may have contributed to the development of their shared sense of their student identities. However, it is worth noting that YSs enjoy working with the opposite gender and students from different backgrounds and that SAs from different backgrounds may challenge their ideas about who they can be comfortable working with (Ragins, 2002).

In the light of these findings it may be suggested that there should be an increased focus in training on pedagogy and ways in which SAs interact with YSs and facilitate them in this learning process. However, if it is hoped that SAs will be viewed as role models it is evidently important that they are not positioned as figures of authority as this undermines the sense of proximity that YSs can share with SAs. The positioning of SAs as careers advisers may also have implications for training. While YSs evidently enjoy talking to SAs about their own experiences, if SAs are a source of information, advice and guidance for YSs it may be that their own experience alone does not equip them sufficiently to provide YSs with accurate information about possible routes.

## References

- Archer, L., Hutchings, M. and A. Ross (2003) *Higher Education and social Class*. Routledge Falmer: London.
- Ball, S J, Maguire, M and Macrae, S (2000) *Choice, Pathways and Transitions Post-16: new youth, new economies in the global city*. Falmer: London.
- Ball, S. and Vincent C. (2002) "I heard it on the grapevine": 'Hot' knowledge and school choice, *British Journal of Sociology of Education*, 19(3), 377- 400.
- Butler, J. (2004) *Gender as performance*. *Radical Philosophy*, 67, 32-39
- David, M., A. Coffey, P. Connolly, A. Nayak and D. Raey (2006) Troubling identities: reflections on Judith Butler's philosophy for the sociology of education. *British Journal of Sociology of Education*, 27, (4), September, 421-424.
- David, M. (2010) *Improving Learning by Widening Participation in Higher Education*. Routledge: Oxon (with Anne-Marie Bathmaker, Gill Crozier, Pauline Davis, Chris Hockings, Gareth Parry, Diane Reay, Ann Vignoles and Julian Williams).
- Davies, B. (2006) Subjectification: the relevance of Butler's analysis for Education. *British Journal of Sociology of Education*, 27, (4), September, 425-438.
- Gartland, C and A. Paczuska (2007) Student ambassadors, trust and HE choices. *Journal of access policy and practice*, 4, (2) spring 2007 108-133.
- Gartland, C (2009) Evaluation of the London Engineering Project, *Royal Academy of Engineering, report for HEFCE*.
- Bauer M and G Gaskell (eds.) (2000), Individual and group interviewing, *Qualitative researching with text, image and sound*. London: Sage. 38-56.
- Gaskell, G. (2000) Individual and group interviewing, p. 38-56, in Bauer M. and G. Gaskell (eds.) *Qualitative researching with text, image and sound*. London: Sage.
- Gorard, S., Adnett, N., May, H., Slack, K. Smith, E. and Thomas, L. (2007) *Overcoming the barriers to higher education*. Trentham: Stoke on Trent.

Hager, P. (2005) Current Theories of Workplace Learning: A Critical Assessment, In Bascia N., Cumming A., Datnow A., Leithwood, K & Livingstone D. (eds.) *International Handbook of Educational Policy*. Dordrecht: Springer, 829-846.

HEFCE (2005) Evaluation of Aimhigher: Excellence Challenge Interim Report.

HEFCE (2007) Higher education outreach: targeting disadvantaged learners.

Henriques, J., Hollway, W. Urwin, C., Couze, V., Walkerdine, V. (1998) *Changing the Subject: Psychology, social Regulation and Subjectivity*, London: Routledge

Hodkinson, P. and Macleod, F. (2007) Contrasting Concepts of Learning and Contrasting Research Methodologies *Educational Research and TLRP, Teaching and Learning Research Programme Annual Conference* Cardiff, 26-27 November 2007, Cardiff, Wales. [www.tlrp.org/dspace/handle/123456789/747](http://www.tlrp.org/dspace/handle/123456789/747)

Hollway, W. (1984) *Gender Difference and the production of subjectivity*. (in Henriques, J., Hollway, W. Urwin, C., Couze, V., Walkerdine, V. (1998))

Lave, J. and Wenger, E. (1991) *Situated Learning, Cambridge*: Cambridge University Press.

Marks, D. (1993) 'Case-Conference Analysis and Action research', in E.Burman and I.Parker (eds) *Discourse Analytic Research*. London: Routledge.

Ragins, B.R. (2002) Understanding diversified mentoring relationships: definitions, challenges and strategies in Clutterbuck, D. and Ragins, B. R. (eds.) *Mentoring and Diversity an international perspective*. Butterworth-Heinemann: Oxford.

Reay, D., David, M. and Ball. S. (2005) *Degrees of Choice: social class, race and gender in higher education*, Tretham Books: Stoke on Trent.

Potter, J. and M. Wetherell (1987) *Discourse and Social Psychology*, Sage: London.

Parker, I. (1992) *Discourse Dynamics: Critical Analysis for Social and Individual Psychology*, London: Routledge.

Reay, D., M. David, and S. Ball (2005) *Degrees of Choice: social class, race and gender in higher education* Tretham Books: Stoke on Trent.

Stuart, M. (2006) 'My friends made all the difference': Getting into and succeeding at university for first generation entrants. *Journal of Access Policy and Practice* 3 (2).

Wetherell M. (1998) Positioning and interpretative repertoires: conversation analysis and post-structuralism in dialogue. *Discourse and Society* London 9 (3), 387-412.

Wetherell, M., Potter, J., 1992, *Mapping the Language of Racism: Discourse and the Legitimation of Exploitation*, Hemel Hempstead: Harvester Wheatsheaf

Wetherell, A., Taylor, S. and Yates J. (2001) *Discourse Theory and Practice*, Sage, London.

Willig, C. (2001) *Introducing Qualitative Research in Psychology: Adventures in Theory and Method*, Buckingham OU press.

## Acknowledgements

Professor Matthew Harrison, Director Education Programmes, The Royal Academy of Engineering.

## **Copyright statement**

Copyright © 2009 Authors listed on page 1: The authors assign to the EE2010 organisers and educational non-profit institutions a non-exclusive licence to use this document for personal use and in courses of instruction provided that the article is used in full and this copyright statement is reproduced. The authors also grant a non-exclusive licence to the Engineering Subject Centre to publish this document in full on the World Wide Web (prime sites and mirrors) on flash memory drive and in printed form within the EE2010 conference proceedings. Any other usage is prohibited without the express permission of the authors.