A Qualitative Study of the Student Internship Experience

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Abstract

Students studying engineering in universities are often offered a departmentally facilitated internship at some point in their program. In the UK this activity is referred to as placement and Engineering departments encourage and positively promote the placement process to students. Typically in the UK the placement lasts for 12 months, is taken between the 2nd and 3rd year of study with students placed in junior level engineering posts in a wide variety of working environments, mostly within England but with a significant number working in other countries.

In program documentation, the advantages of placement are celebrated and attempts to quantify the learning outcomes achieved have been made. However, because of the wide variety of geographical and cultural locations, work environments and the faculty lack of day to day control once a student has been placed, it is difficult to write these learning outcomes from an evidence base.

In this paper a qualitative approach has been used to illuminate the academic, personal and professional development of students resulting from the placement experience, based on the analysis of semi-structured student interview data. This paper reports upon the themes identified in the analysis and compares the results with those expected from the existing learning outcome statements.

Introduction

One model of undergraduate engineering education exemplified by practice in the United Kingdom is for students’ programs of study to include significant elements of learning in the work place, supported by faculty oversight. The time students spend in the work place internship, which is usually in commercial companies, normally takes the form of paid employment with the student undertaking typical junior engineering/technician roles within the organization. To acknowledge the successful completion of the internship at the end of the program, students are awarded what are termed sandwich degrees to differentiate them from the alternate full-time program of study. The amount of academic credit offered for the successful completion of the placement varies between institutions but the title of the degree the student achieves reflects the successful completion of the sandwich element.
Degree programs that include an internship element have a long history, and are claimed to have numerous advantages over full time programs. As a result, universities have encouraged students to undertake internships and in the UK, this has led to a significant growth in sandwich education, both in absolute numbers and as a proportion of those studying at university – particularly in vocationally related subject areas. This growth has not been accompanied by significant research into the issues that this form of education raises, particularly concerning the student learning outcomes achieved in the wide variety of internships, and the equally wide variety of workplace settings.

Within the degree program documentation the educational and personal benefits students are expected to achieve are written in terms of learning outcomes. Faculty has written these learning outcomes from a basis of practice and tacit understanding of the types of training and roles that undergraduate students on placement will participate. However, it is difficult for these outcomes to reflect the achievement of students on placement and at best can only ever reflect a partial view of placement outcomes.

Background

The UK's national learning and teaching support network for engineering (LTSN Eng) says,

‘Work placement is generally accepted as being a valuable component of the learning process. Evidence suggests that graduates with work experience have more employment opportunities than those without. However placements can sometimes be difficult to find and certainly vary in quality.’

While admitting the difficulty of finding placements for students, the concept of a high quality placement is more difficult to define. The concept of quality is a highly contested within HE resulting in a variety of views as to what features a high quality placement might have. From the educational viewpoint, the key quality indicator might be evidence that students undertaking placement perform better than their peers who did not, and most engineering educators would probably accept this as being the case. In the UK, the government funded PROFILE project has sought evidence for better academic performance from students who have undertaken an internship, and conclude,

‘It has long been realized that students returning from work experience out perform students who haven’t been in the workplace in terms of performance in their final year. Evidence for this has been anecdotal.’

The PROFILE project appears to be aiming for a less prescriptive description of the placement process than has hereto been the case. The idea of negotiated learning outcomes is used to reach an agreement between the university, the student and the employer as a means to achieve higher quality placements. In this conception of quality, quality means ‘fitness for purpose’ with the purpose negotiated prior to the placement.

The result emphasizes the difficulty of adequately specifying a good placement in terms of a narrow set of learning outcomes. The highly influential Finniston report said that the objectives of placement should be to develop in aspirant engineers:
a. understanding of the operation of an industrial organization and the nature and
importance of the engineering dimension within it;
b. understanding of systems of communications and control within organizations;
c. personal skills of working with other people at all levels in an organizations;
d. understanding of the organizational and administrative principles of running a
business particularly the roles of financial control, costing and marketing;
e. appreciation of the kinds of work in which they can best contribute to the business
and most effectively develop their own potential;
f. experience in carrying out engineering tasks to build confidence in the application
of knowledge to the solution of real problems.

Context

It is important to state that the authors’ accept the essentially orthodox position that the value of
internships within the engineering degree is high. However, there are critics of sandwich
education, notably Smithers\textsuperscript{6} who sees the industrial training period as purely experiential, and
no different to the traditional three-year full-time student who takes a vacation job as a forklift
truk driver or a gardener. Smithers argues that work undertaken by students on sandwich
courses bears little relationship to the academic course to which the student is enrolled.
Critically, Smithers concludes ‘\textit{we have to ask to what extent could the benefits of these courses
be obtained more economically and conveniently in other ways?}’ Without a clear evidence
basis for the benefits of the internship experience in terms of personal, academic and
professional growth the relatively high cost to students, universities and employers of
placement remains open to criticism.

To attempt to describe the placement experience from the students' perspective, four small
groups each consisting of four or fewer students of electrical and electronic engineering took
part in a audio recorded structured interview. The students had just completed work based
internships with a variety of different organizations, geographical locations and business types.
The interviews took place during the first week of October when the students had just returned
to university for their final academic year, and the authors acted as facilitators for two groups
each. Participation was voluntary and although students received light refreshments, no
payments were made. The results of the interviews were transcribed and qualitatively analyzed.
The aim of the analysis was firstly to reveal a thematic basis to the student learning experience
on placement. And secondly, to reveal the conceptions that students exhibited, relating to the
purpose and outcomes of their placements. Only one female student took part, both UK and
non-UK based students participated, and the age range was from 21-35. The group interviews
lasted approximately one hour.

Interview

Prior to the interview participants were informed about the reasons for the research; the
intended timescales and outcome; the procedures to ensure confidentiality; the methods to
preserve anonymity and the purposes for which the authors intended to use the results of the
research. Following questions from the participants, they were asked for their consent and
informed of their right to rescind this consent at any time. All of the students gave their
consent. Anonymized transcripts of the interviews are given in appendix A.
The semi structured interview process was designed to allow the students to talk about their experiences during the placement process. The procedure used was to use a set of predefined framework questions introduced at appropriate time by the facilitator in each session to encourage the students’ to talk about their placement experience.

Results

Initial reading of the transcribed interview data revealed a number of possible factors relating to the placement experience. The criterion used for selection for further investigations was if more than one student discussed each factor and that the factor appeared in more than one interview session. The factors that emerged were as follows,

- Selection process
- Learning about the organization
- Personal skills development
- Working with and for other people
- Learning about engineering and the professional engineer

The selection process

All of the students responded to the question relating to how they got their placement. What was immediately clear from the students’ response was that there was significant confusion about the interview process. In discussing the interview, it was also apparent that at the end of placement most of the students remained confused about the interview, as demonstrated by the following example responses.

‘...I just went on about how nice [placement city] was, so when they said why do you want to work for [placement company] I just said I wasn’t really that bothered I just wanted to live in [placement city]’

‘... they asked me a lot of questions about the [service the company provided]- I didn’t know much, but I got the job anyway.’

‘[the company] came to Sheffield quite early on, attended an interview, it went quite well, wasn’t sure, [interviewer] didn’t give much feedback.’

‘ I rang up...and said I was very interested in having a job at [placement company] and she said yes. I was quite impressed as apparently there were about 21 people who had been interviewed.’

Learning about the organization

A significant number of responses highlighted learning about the organization as a social institution as an outcome of the placement experience. In many cases attaching positive emotive values,

‘... it was most definitely a good experience seeing how people work, how they interact with one another, sitting in meetings, so that was a good experience...’
‘I got to work with all sorts of people, from the shop floor fitters to shadowing directors and stuff. I got like a mix. Just watching them do what they do, day to day, and going to meetings. They were all really nice. A lot of top managers had worked their way up anyway, they were all really friendly and down to earth… it was really nice.’

In another case, understanding the organization seemed very important,

‘I spent a lot of – not my proper job- time talking to other department, why they do things that way, just tried to map in my head how a large company works. I did my job as well, but my job gave me lots of opportunities to ask lots of awkward questions, so I did.’

‘I saw the management and everything, at different levels, from the shop floor up to the higher levels. You could ask anything you wanted, and they were really helpful.’

‘…you could go and ask anybody anything and they had time for you.’

Personal skills development

Strongly aligned to learning about the organization, was finding out about how to function within the organization using formal and informal means from the personal skills viewpoint. Closely related to the growth of personal skills, many students also describe the growth of their personal confidence and motivation.

‘I have definitely become more confident on the phone, because I was constantly on the phone getting information out of them…just interacting with people, going to meetings, stuff like that which I have never done before.’

‘It builds your confidence in dealing with people and I did quite a lot of traveling. A lot by myself to different places… you get used to meeting people’

‘I think maybe I’m a lot in the sense of working more mature and more professional in the way I go about things.’

‘…the clients…I had to speak to them on a very professional level and also we sort of had to learn how to communicate engineering principles across in a way which they could understand. With engineering colleagues we could talk engineering concepts and they could understand what I meant, it’s like two different levels of language that you have to learn.’

Working with and for other people

Several students highlighted the formation of relationships as an important factor.
‘You’ve got groups of people, they may work for a department but they’re
groups of people Line people- they’re groups of people, so it’s just more
understanding that’s how you develop working relationships with people. That
is the key…most problems boil down to communication problems between
people.’

‘I got on really well with them [departmental staff] right from the start, with
respect to the work I was doing, socially and everything.’

‘…got on really well with the people… spent time in three departments… the
people there were very nice, a friendly atmosphere to work in.’

One student described a more difficult working relationship,

‘I liked walking about, watching other people work. I developed effective
working relationships… there were the odd people, one in my project team, who
took great pleasure if anything went wrong. But if something frustrated him that
he couldn’t sort out then he had a tantrum. I’m not very good about dealing
with those sort of people. Even so, I could deal with him professionally.’

Two students reported their immediate line manager as representing a strong role model,

‘[name] he was called. He was good, he was basically a workaholic, he spent
most of his time at work, and he’d be there by 6.30am and probably wouldn’t
leave until 5.30pm. Coming in as a first impression, I thought they were all
workaholics but then you got into the swing of things and his management style
was that he could make you want to work for him. You didn’t feel under
pressure to work for him, he didn’t pressurize you, he made it that you wanted
to work for him and you didn’t want to let him down which I thought was good
and was good for myself.’

Learning about engineering and the professional engineer

A number of students discussed the role of engineering and of professional engineers in the
companies where they carried out their placement.

‘I’ve learned about how projects are run and a lot more about software. It was
still some electronics, but more general engineering practice.’

‘I worked with professional engineers all the time. I was writing the training
manuals- that was a personnel [human resources] driven thing. They knew they
couldn’t do them because they didn’t have an engineering background. They had
to be written by engineers.’

'[with engineering you are not stuck in one job all the time] I think that is the
main thing I learned. There are so many different things you have to know about
- finance for example, as well as the rules and the safety aspects. You can see
where all the different engineering is linked.’
Two students found the actual practice of engineering as quite different from what they had expected.

'I thought with [a large international corporation] it would be a fantastic way of working, but when I got there I realized that they were just like any other company with normal people doing normal things.'

'I started doing engineering because I wanted to be an engineer. They impressed me as a group of people. I'm not impressed any more! It has not stopped me wanting to be an engineer, but they are not a group of people that... well they are just a group of people.'

Discussion

The purpose of this study has been to reveal what a group of students felt they had gained from their work-based placement. The qualitative analysis indicated a number of themes that consistently appeared within the four interview sessions and were addressed by a number of students from different viewpoints.

In looking at the whole of the interview data using the identified themes as an organizational approach a number of hierarchically and qualitatively ordered conceptions are apparent within each of the themes. Each of the conceptions includes the elements of the lower level, and these are arranged in table format below (table 1). Where evidence exists in the data that students hold a particular conception, this is shown in bold. Question marks (?) indicate where no evidence of students holding ideas about the themes at that particular level was found, and how a conception at that level might be represented.

<table>
<thead>
<tr>
<th>Level</th>
<th>The selection process</th>
<th>Learning about the organization</th>
<th>Personal skills development</th>
<th>Working with and for other people</th>
<th>Learning about engineering and the professional engineer</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>as a complex social process, rules understood and utilized (?)</td>
<td>as a complex and layered social institution capable of organizational learning (?)</td>
<td>negotiation, diplomacy and argumentation in a wider context (?)</td>
<td>critically analyzing ways others use to be effective</td>
<td>reflecting on the roles of engineers in the organization and the wider community, finding a professional voice (?)</td>
</tr>
<tr>
<td>2</td>
<td>structured and understood (?)</td>
<td>as a complex and layered social institution</td>
<td>self confidence negotiation, diplomacy</td>
<td>utilizing the mentor for development</td>
<td>context understood and emulation of the practice of role models</td>
</tr>
<tr>
<td>3</td>
<td>structured but not understood</td>
<td>as a social institution</td>
<td>self confidence and negotiation</td>
<td>identifying the roles of the aspirant engineer</td>
<td>working as part of the team</td>
</tr>
<tr>
<td>4</td>
<td>arbitrary</td>
<td>as an institution</td>
<td>basic communication skills</td>
<td>part of the team</td>
<td>listening and watching</td>
</tr>
</tbody>
</table>
If these conceptions were to be used as the assessment or evaluation criteria for the industrial placement/internship, then the basic pass level criteria would probably be set at or around the level 3/4 boundary. However, it is clear that some of the higher level conceptions are held by relatively few students, with only one student reporting that they felt their role was to ‘ask the awkward questions’ as a method for the organization to critically reflect upon its way of working.

Understanding of the selection process was particularly poor with no students really acknowledging the process as anything but arbitrary. Of course, this may simply reflect the reality of placement student selection, in which the placement itself is seen as an opportunity for an extended interview.

Personal skills - particularly communication skills - were acknowledged as being powerfully influenced by the placement experience. All of the students reported a significant increase in both self-confidence and the ability to communicate. Some were able to effectively utilize these skills to negotiate and work with more difficult colleagues.

In terms of working with and for other people, a wide range of conceptions were apparent with students talking and reflecting about quite complex ideas. Several students had observed a variety of leadership and negotiation styles, and were actively including them within their own emerging professional ways of working.

Students learnt about engineering and the professional engineer in a variety of ways. The highest conception appeared to be that the context was understood, and emulation of the practice of role models was being utilized as a route to professional development. Clearly students identified with their role as an employee in this theme, and the idea of a professional voice in the wider social context did not appear.

Conclusions

The analysis of the interview data showed that students identified a limited number of themes resulting from their experience of work-based internship. These themes can be represented by a hierarchical and qualitatively defined set of conceptions related to each of the themes. In terms of the Finniston criteria for placement, many of the students meet the requirement irrespective of the fact that they are not explicitly stated as part of the briefing to staff or prospective employers.

For teaching and learning practice, this study raises a number of action points. Firstly, the selection process is not well understood by the students, and there is a learning requirement for students to explore current practice in personnel selection. Secondly, personal skills development whilst on placement is not optimal. This factor is extremely important given the apparent close link between transferable skills development and qualitatively superior approaches to learning. Thirdly, students are identifying their roles as fundamentally technocratic and as employees. The university and placement seem to be providing a domesticating education rather than a liberatory education. In the context of the demand for the increased mobility for engineers, globalization and sustainable development, this must be a concern for engineering educators.
References


2. LTSN Engineering (2003) Employability, available online at www.ltseng.ac.uk/er/employability/index.asp accessed in 1/12/03


Biographical information

John Rowe is Lecturer and Teaching Fellow in the School of Engineering at Sheffield Hallam University. After university and industrial experience as initially a computer systems design engineer at Plessey and latterly as an integrated circuit applications engineer at Marconi he joined the university as a lecturer in electronics. John currently is responsible for the coordination of learning, teaching and assessment strategy in the School of Engineering.

Tim Mulroy is a Lecturer in the School of Engineering at Sheffield Hallam University and provides academic oversight of the engineering industrial placement program for undergraduates. He is also academic coordinator for joint programs between the university and its partner college in Malaysia. Tim started his career in telecommunications at GEC before moving into semi-custom IC design. Tim teaches electronics

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Appendix A

Interview 1

Interviewer  Okay, so I'd like to start with some general introductions, and I'd like each of you to talk about your age, qualifications and how you got to SHU in the first place?

A  34, I was working as a betting shop manager, and I just didn't like it after a while. I tried to do something else. The first thing that I chose was NVQ level 2 Electrical & Electronic Engineering, and I've been unable to get out of it since.

Interviewer  So did that get you directly into SHU or did you have to do anything else?

A  I did NVQ level 2, ONC, HNC, HND. I wouldn't have taken so long, but the government wouldn't really finance anything.

Interviewer  Thanks, who is next please?

B  23, came here from A-Levels, actually had a year off.

Interviewer  What A-levels did you do?

B  Chemistry, Maths & Design Technology

Interviewer  The traditional route into engineering – next please?

C  I'm 21, I did School and College in [home country] I did electronics in College and always wanted to do engineering. I wanted to study abroad as well. So I came to England

Interviewer  Thanks who is next?

D  25, left school at 16, went to College on a full-time OND course, and when I had done that for two years, got a job and did day release - HNC & HND, and after finishing HND came here.

Interviewer  … and started at Sheffield. That's fine, right, OK so basically the introduction to your placement. How did you get your placement and how did you find it when you were there, and who did you work for.

A  The [university] placement office found my placement, I attended the interview with the personnel manager, and the QA manager.

Interviewer  You can tell us the firm as well?

A  [Japanese electronics company], I thought they did telephones and office systems, but it was televisions.
Interviewer Did you think the interview went well?

A Erm, it's the first interview when I didn't say anything about the company, I just went on about how nice [southern English city] was, so when they said why did you want to work for [Japanese electronics company], I just said I wasn't really that bothered, I just wanted to live in [southern English city] for a year thanks!

Interviewer And they were impressed?

A Well, I've no idea.

B Well, they must have been, because they gave you the job!

B The placement office got me the interview, at [a railway company], I had the interview and they offered me the job.

Interviewer What was the interview like?

B They asked me a lot of questions about the [service the company provides], I didn't know much, but I got the job anyway.

D [an industrial control and automation company] came to Sheffield quite early on, attended an interview, went quite well, wasn't quite sure, [company representative] didn't give much feedback during the interview...

Interviewer He's the personnel manager?

D Yes, I though it went alright, and got offered the job, it was supposed to be for [named company], which is a sister company.

Interviewer The hardware side?

D Yes, but that didn't really work out when I got there, I did something else.

C I did an on-line application with [American electronics and computing company], although they were advertised through the placement office two or three months later, but I had already applied on-line. They invited me for interview, which went off well, and after a couple of months they gave me an offer, and I started in July. I didn't know exactly what I was going to be doing, because they are such a big company, they themselves didn't know where I would be going, so I only really got to know what I would be doing during induction in the first week of July. But I was pretty sure it would be something related to what I wanted to do.

Interviewer Right, OK so if we can continue, what did you get out of placement?

C Well, I definitely learned much more, than if I had stayed at university. Apart from the actual technical aspects, which was basically networking, I was also assisting the network administrator for the department. I got used to being in an office environment, because I had...
never really worked before, this was the first time I was actually in an office, doing a proper job. So, from that point of view, it was most definitely a good experience seeing how people work, how they interact with each other, sitting in meetings, so that was a good experience, even from a technical point of view. I did learn a lot, I got exposed to new software, I used Lotus Notes a lot. I never knew what Lotus Notes was before I got there.

A I've worked in engineering before, I've done 5 years in engineering but always as a low level person, so when I went in, I was interested in how all the other departments worked as a whole. I spent a lot of - not my proper job - time talking to other departments, why they do things this way, just tried to map in my head how a large company works. I did my job as well, but me job gave me lots of opportunities to ask lots of awkward questions, so I did.

Interviewer You were in your element?

A I was, yes. Everybody was courteous and polite, so you could ask a strange question that had nothing to do with what your job was, and they would take the time to answer you, and if they couldn't answer you fully, they could put you in touch with someone who could. They did want me to get the work done, but they were also aware that it was a placement, and I was there to learn. There were other placement students there, who were doing projects to do with their University, and they were allowed time to do that, it was an environment where they expected students to have their own little things to do as well as what they set them to do. So the environment was such that I could find out what I wanted to find out. So I did.

B I learned a lot on the placement, I wasn't always in the same office, they sent me around on two week slots to other companies where I saw the management and everything, at different levels, from the shop floor up to the higher levels. You could ask anything you wanted, and they were really helpful.

Interviewer So what type of skills did you pick up?

B Erm, like sitting in meetings, I went to loads of meetings, I didn't really know how meetings worked before, so you got experience of that. I don't know, I suppose that there's lots of things, but it's difficult to say what.

Interviewer With lots of meetings you got to know lots of people?

B Yes, I made lots of contacts.

Interviewer Was it difficult being in places for only 2 weeks at a time?

B It was weird, you don't get to know people over a long time, before you move again. I was staying in hotels by myself. It was a bit boring sometimes.

D In my previous jobs, I've been more involved in the electronics side of things. When I got to [automation and control company], it was more of a software job - project planning, so from that point of view, I think I've learned about how projects are run, and a lot more about software. It was still some electronics, but more general engineering practices.
Interviewer: You have said that you worked before? So you tend to have learned the technical skills rather than first impressions of industry?

D: Yes.

Interviewer: What did they get out of you?

C: I don't think I, what I was doing was very highly skilled. They could have trained anybody to do the same thing. I was lucky in the sense that I was assigned a mentor, and what we were doing, nobody else in the company had ever done. So in effect it was a separate post. Since it was new, we divided up the work into half, so I did half of the work and he did half of the work. It wasn't if, he knew what I was doing, or he was deciding what I should do. I could do the bit of my work the way I chose to do. In that sense, I did develop some skills that nobody else had. They needed someone to do the job so I did it.

Interviewer: So you were doing testing/evaluation?

C: I was using Lotus Notes, at that point they had only one developer and he left a month after I joined. Basically I filled in that position.

A: [Japanese electronics company] wanted quite a few training manuals writing for the line staff, and one or two for management in general, for information. That is what they got out of me. I wrote two-thirds of their training manuals. I think what they also get out of students is people who are naive as they ask a lot of awkward questions and they have to think of an answer, and when they have answered it, they have to go and change the system that they are working on, because it wasn't as effective as they thought. Because I was writing a training manual, I would have to get 3 or 4 departments input, and if there were any clashes anywhere, to find out where the clashes were, and to sort them out so they weren't clashes. A lot of the information given to the line people was ambiguous, so they were expecting people who may not have been clever, to analyse information and decide the best to use. No disrespect to them, but they were paid to move their arms and legs about quick, not stand there thinking, so you want TV's going up the production line, not people standing there talking. Not that they can't do a good job doing it, but that's what you want them to do, not remove them from the line. As the line members became more aware of what I was doing, they were quite happy to point out ambiguities to me. In the end I was working not as hard as I was initially, as people were telling me the things to go and ask other people.

Interviewer: So it saved you a job?

D: It was just using your resources effectively, and developing relationships with people so that they can present you with things so that you can go off and talk to people and then give them feedback on what they have said.

B: I didn't do much work as such as I was moving round all the time! They want chartered engineers, and they have offered me a job if I get my grades and everything. They need so many on the team.

Interviewer: They see you as an investment?
B They see it as really important that I got to understand the whole of the railway industry and how it links together, because it is so big. It was part of the training plan that they put together for me.

Interviewer How did you feel, that you were in for the long run?

B I was pleased, I really liked it. I found it really interesting, and I know that there here to help me now, and hopefully they're going to give me a project to do as well.

D I was used quite a lot in the planning stages, a lot with equipment that they use - PLC based. Big panels connected to all different oil terminals, so I developed wiring schedules using Excel, which lists all the inputs and outputs of the plant - might be thousands. Using this wiring schedule the workshop goes away and builds the plant, so it needed to be quite accurate to where all the different signals ran. Apart from doing that sort of planning, I was involved in testing most of them, and worked in the workshop. They have what is called a factory acceptance test, where the client comes and witnesses the plant working. At the end of it he signs it off. I was involved if there were any problems or anything that wanted changing. I had to go and change the documentation. Just basically helping out really.

Interviewer You were doing a job where there was a product that needed testing, and made ready for the customer.

D Yes. I'm not sure if I was exactly what they wanted, maybe someone more software orientated perhaps.

Interviewer How has placement changed you?

C I have definitely become more confident on the phone, because I was constantly on the phone talking to people, getting information out of them. Even leaving a voicemail message, at [American electronics and computing company] you had to change your voicemail message every day. You had to say this is me and this is the date, and I'm away from my desk for a couple of hours. At first it seems very, I feel very uncomfortable doing stuff like that, but when you get used to it in that sense, if I ever have to do something like that again, I will be much more at ease. Generally, just interacting with people, going to meetings, stuff like that which I have never done before. I will find it much easier.

D University seems to be more about working on your own than most of it, so I was surprised seeing different departments working together, I was thinking more logically, that's the finance department that's the testing department, when it all boils down, it's groups of people, so that's what has had the biggest impact on me. You've got groups of people, they may work for a department, but they're groups of people. Line people, they're groups of people, so it's just more understanding that it's how you develop working relationships with people. That is the key. You might go to meetings, but that is just another group of people. It's developing a relationship that will work effectively. Most problems boil down to communication problems between people.
C It's like if you want somebody to do something for you, if you have talked to him before, he will go the extra mile. For example, if my mentor talked to him, he'd do it in 5 minutes, but if I talked to him he would never do it. So things like that you have got to keep talking to them so that they actually do what they say.

B It has made me more confident. When I am travelling around all the time, being sent everywhere, meeting new people.

Interviewer Any other skills?

B Don't know. Can't think!

D Very similar to what everybody else has said. When you are interacting with different people, if they're asking you awkward questions - a client for example. Instead of standing there stuttering, you are able to give a concise answer. You get more used to working with people.

Interviewer How did the working relationships at work happen?

C I was quite lucky in the sense that in my department there were 30 people in all, there were seven people who were like 26 or 27 so I got on with them really well right from the start, with respect to the work I was doing, socially and everything. Then I got to know others in the department, and irrespective of age it was really easy going in, I never had any problems as such. That was because I was sort of doing a help desk role, I got to know everyone in our department, because at some time or other somebody had a problem and would email me or call me for help. the interaction was at that level but as I said, they were young people and we got on together really well. So I got settled into the department very easily, without much of a problem.

D I liked walking about, watching other people work. I developed effective working relationships. The only tip I have got is if ever I needed to go into a new area I would seek out the department head, even for thirty seconds. After that when he pointed me to somebody, I could say to that person, your department head has told me to come and see you about... So that got you the initial conversation, and the angle so that you could go back to the department head if that person blanked you. But they never did.

B I got to work with all sorts of people, from the shop floor fitters to shadowing directors and stuff. I got like a mix. Just watching them do what they did day to day and going to meetings. They were all really nice. A lot of top managers had worked their way up anyway, they were all really friendly and down to earth. Everyone I met, really. It was really nice.

D We were divided into project teams most of the time. We did have to interact with other people. I was in charge of the anti-virus software for two different departments. I got on with everyone fine, the were the odd people, one in my project team, who took great pleasure if anything went wrong. But if something frustrated him that he couldn't sort out then he had a tantrum. I'm not very good about dealing with those sort of people. Even so, I could deal with him professionally.

Interviewer You wouldn't want to socialise with him?
D  That’s right.

Interviewer  Were you looked down on because you were students?

A  I used the line “I'm only a student” a couple of times. Everybody said you can't use that excuse, but I was only using it jokingly.

C  I think it can depend on if the company has had students before. For example [American electronics and computing company] have had this programme for the last twenty years, so they are used to getting students every year. So the attitude of the people is that they know the background of where the student is coming from. It is not as if it is a surprise. If it is a small company that are not used to having students it may be different, I don’t know.

A  I worked in offices and that was the general conversation starter. They would tell you where their placement was. They were engineers, and they have done the same sort of thing that you have done.

C  They were all students before.

Interviewer  How did you work with professional engineers?

A  I worked with professional engineers all the time. It was writing the training manuals that was a personnel driven thing. They knew they couldn’t do them because they didn’t have an engineering background. They had to be written by engineers. I took over from the quality assurance engineer. So it was engineering all the way through. Whatever part of the manufacturing business you were looking at, that would be overseeing two or three departments, would be professional engineers.

B  I was with engineers most of the time. I wasn’t really working with them as such, they used to tell me lots, how stuff worked, they used to explain failures and stuff. It wasn’t like doing any work. I did a few projects on various placements. It helped me that they explained things. They didn’t expect me to know much about a lot of the stuff, particularly mechanical.

Interviewer  Was that what you had to learn about as part of the job?

B  It was quite easy to understand, once you have seen it. They show you where it breaks.

D  I was working with professional engineers, who mostly delegated work. We didn’t converse as such, they just told us what to do. One criticism about [Automation and control company] is that sometimes they are not good at explaining the overall nature of the job. I was working for a number of weeks on a control system for Kenya, before they way that the plant worked became apparent. I don’t know if they assumed you knew more than you did. It’s a bit awkward really. It would have been a great benefit just to have an overview of what the job is before starting, rather than being told to get on with it.

C  I just wanted to say I didn’t see anything about engineering as such, I was based purely in software. I didn’t really get to talk to any engineers, but I guess there was engineering on the networking side as there was hardware. We were involved with software engineers.
Interviewer Has the placement experience changed your view of engineering?

A I started doing engineering because I wanted to be an engineer. They impressed me as a group of people. I’m not as impressed anymore! It has not stopped me wanting to be an engineer, but they are not a group of people that… well they’re just a group of people.

Interviewer Do you think it is a bad thing to be classified as an engineer then?

A If somebody asked me who I was, I wouldn’t say that I was an engineer. I don’t know what I would say instead though! I assumed engineer ranked alongside doctor or lawyer.

Interviewer It should do, but the public’s perception of engineer is different to that

A But I didn’t rate doctors or lawyers very highly, so I rated engineers as the highest thing I could achieve. It was a massive challenge to me, the biggest challenge I could go for. My perceptions don’t match everybody elses obviously.

C Doctors, there’s a human element. Engineers maybe not so much.

A When you are a doctor, people know roughly what you do. But when you are an engineer, well I’ve not been able to give you a definition of what an engineer does

Interviewer Because I don’t think there is an easy answer?

B I think that is the main thing I learned. There are so many different things that you have to know about – finance for example, as well as all the rules and the safety aspects. You can see where all the different engineering is linked.

D Possibly, if you hadn’t had a job previously, and went straight into work from University. You might go out of University thinking that it is all theoretical or derived or worked out properly, and then you get to industry and they are interested in doing it right, but more interested in doing it right quickly and cheaply and more focussed on just one part of it, rather than the wider picture.

Interviewer Are there any other comments?

D One of the things that I noticed is that at University, you might not have access to the specific software you wanted. In industry you have to make it work in Excel. So everything people wanted to do at our place, if they couldn’t do it on Excel, they wouldn’t be given the funds to buy any fancy software. So when at University I thought we should have the best software, when I got into industry I found that they didn’t use it.

C I thought with [American electronics and computing company] it would be a fantastic way of working, but when I got there I realized that they were just like any other company, with normal people doing normal things. For example, when you design software you have to use a structured approach. It is not if they are anything special, it is about branding. Perhaps I might go into technical marketing.
Interviewer Any more questions? No? Thank you for your time.

Interview 2

Interviewer Can you tell me about your background, how you came to SHU?

E Education Background, traditional GCSEs and then sixth form for two years and then SHU. A level Physics & Physical Education. Didn't do very well at A levels and started SHU on a HND and then progressed from there. A levels didn't help. When got to University found a subject that I was interested in. The A level route didn't really work out but coming the University gave me the opportunity to get back to where I wanted to be.

F Educational background, A Level Physics, Maths and Technology
Started at Sheffield Hallam University

E For my placement I worked for [automation and control company]. The company are involved in controlled systems and integrated systems and I worked in two Engineering groups within the company called intelligent automation, which is traditional on site based control and then the other group [tape garbled] which is wide area network control, for oil fields and water treatment so I spent time in both departments.

I did a twelve month placement and was the asked to stay on for a couple of months, so it worked out at 14 months.

I think the feedback that I got from the people I worked with was that I suited the company and was being productive in what I was doing and the work was their to be done and they asked me to stay and continue.

F My placement was at a power station at [east midlands power company]. I was working on a project on the electrical engineering side and also the design side. Once the contract was awarded, I moved onto the groundworks, clearing site. Amongst other things not related to my course looking at documents, control for large projects and I also got to visit one or two of the other sites.

Initially quite daunting, the company where I worked employed 520 people so it’s a small company. There were no set plans for placement students, it’s not like a laid out plan its more reporting straight to the project manager. So initially when I got there I didn't know what to expect. Initially it was quite a big hurdle to get over, it was quite a big learning curve but once I had got on the curve I started learning quite a lot to do with what the company did and then I started becoming a useful member of the team, getting more responsibilities and getting more confident. Much more confident in the work place and learnt a lot in terms of how to behave professionally and time planning, working to deadlines, working on my own in some instances, things like that. Also programming to a standard instead of like at University when you just do programming for an outcome. Being made aware of a lot of things that I had never come across before, things that I would never be able to picture in University.
I was involved with working on my own and working in a group and also working with individuals on projects. Did a two-week induction programme. Half a day with each team which gives you a background on each team and how they work together. Two teams concerned in a project there was the integration and design team and the project team which made sure its was being built to spec.

Working with everyone instead of working on my own.

Some jobs were given to me and some were what I picked up by myself. A lot of it was to know what needed doing. The team altogether knew what needed doing not just one person.

Initially the work was given to me and as I progressed I picked up things by myself. The first thing that I did was what was happening to the project so far, the specification of it.

Interviewer  What did you gain from placement?

More confidence. Being a useful member of an organisation where I was working. Have something to talk about on past experience, things that I have done on placement. Working on placement has opened my eyes to that area of industry; I've seen a good insight into it to know about work as well as practical things, I didn't have such skills before I went on placement.

What was gained from placement?.....Personal skills really, dealing with other people. Working in a team. It’s sort of the first job that I've done in Engineering.

I was working for a company, which was contracted in, and working to strict deadlines and we were providing a product for a customer so there was a lot of customer services involved.

It builds your confidence in dealing with people and I did quite a lot of traveling. A lot by myself to different places. At first this seemed to be daunting. Meeting different people. Meeting people on different levels, project managers, general managers. You get used to meeting people. Being a placement student they don't expect as much from you as when you have a degree in Engineering and then obviously you would have more responsibility. I had to deal across the board with different people right from electricians, lads on site and people who are way above you and making key decisions. Learning how to communicate in different ways with these people and to get across your point of view. At my time with [an automation and control company] we did a project with a company, they came in and the Head of Engineering of the whole company was there, the Head of Engineering for the whole site was there and they also brought some operators of the system so there was a wide range of different skilled people. We had to demonstrate the system to all three different kinds of people, which was quite difficult because their understanding of the system was all different.

This actual part of the system that I had developed so a lot of the responsibility was on me. My Project Manager was there although he was the Project Manager for what was actually the work we were doing he was quite busy on a day to day basis, he was managing the budgets, the hours and had an overall view of what we were doing.
It’s quite an experience for the first time but now I am sort of prepared for that again. I think over the course of the year it builds you and gives you an ability and gives you a head start when your going to a place of work over someone who hasn’t done a placement and is coming fresh out of University, they have to get on a learning curve. Where as if you have done a placement there’s a lot of things that you can cross over into different areas, you can really start making progress.

Interviewer  What did your employers get out of it?

E  Cheap labour really. Where I worked it was all project work so it was all budgets. Our hours that we worked we worked into this budget so it wasn’t as if they said oh we’ve, we were actually costing them we still had to make a profit so there was a lot of responsibility. A lot of the work I did initially for the first six months I had my own section of the project and I was responsible for that section and I had to answer to the Project Manager and if things weren’t getting done he wanted to know why. You had to be effective, so for them really they’ve got someone who was cheap for what I did really. Apart from that they’ll say that their looking for people for the future, they’re looking to get candidates who are right for the company. If you’ve been there for a year then you’ve got a good chance of coming back. Where I worked that’s the way they looked at it, they got 12 months with someone who was going to be useful for them and cost effective but then longer term they can see if there going to be right for the company.

For the company it’s a very good thing.

F  Again I think they were using the placement to see what people were like out of University. The only feedback that I got back was saying I did very well for that year and they would consider me to come back when I had finished. Again I feel the same towards sort of cheap labour, the work that I did there they would have paid someone a lot of money to do exactly the same job. I gained experience from them and at the same time their sort of learning from me.

Interviewer  How do you think you have changed?

F  I am more confident about dealing with things more confident in general really.

E  I think maybe I’m a lot in the sense of working more mature and more professional in the way I go about things.

I don’t just pile into something and do it, there are more influences from outside and standards that you have to work to and be aware of these things, Health & Safety, things that I didn’t bother too much about before but since working in industry I have to be aware, behaving in a professional manner on site. Really you couldn’t go into it quite naive, there are a lot of things that you have to do personally to protect yourself on site, risk assessments, if you don’t, if you don’t cross the I’s or full stops. Even if its to get the job done quicker so you can get off home, there going to come down on you for that even if you’ve been trying to get the job done quicker. Just being aware of things like that. Two years ago I was enjoying University life, thinking oh this is great its going to go on forever like this but now I think coming back this
year I feel more focused, I’ve got nine more months and I’m going to put everything into it this year and I know where I want to be now. I know what I want to be doing at the end of this course and where I want be heading. A year or so ago I don’t think I knew where I was going. It all seemed to be so far away. Now I want to get the course out of the way and make a start.

F I enjoyed that placement while I was there. Learned quite a lot of other things, Health and Safety, Risk Assessments, PPE working on industrial products sort of permit to work system. As a sort of a set job I am still not sure what field I would like to go into. I enjoyed working on a project as things are changing all the time.

Interviewer How were working relationships?

E I sort of got on really well with the people and I spent time in three departments and the people there were very nice, a friendly atmosphere to work in. You haven’t got to be afraid to ask people for help. I got to know people outside of work, there are a few people there that are friends and I will be keeping in touch with. That was quite a good part of it as well.

I worked with a few people like Principal Engineers who were experienced so I watched how they worked and sort of introduced things into the way I was working. Especially early on, sort of see that if they make mistakes they step back analyse it and then go forward. Where as initially I’d get a bit frustrated. I learnt quite a lot working with them.

F Again we all got on very well together. There were three groups of people I was working with and the team, the project team and the main contractor and throughout the time there was a lot of events organised. Project Managers, Construction Managers, Administration people, Finance, Electricians. Had a working relationship with all these people.

E Where I worked with it being a small company there wasn’t sort of Finance and Admin people. Most of the people are Engineers or Computer Programmers so I had a relationship with all different levels. But the close relationships were sort of the younger people, the older Engineers I had a working relationships, but outside of work didn’t really get involved. More of the lower grade Engineers which were the younger people they got involved. The IEE department which would have been the original department from which the company formed around had all the older people there. The Project Managers were younger and they got involved with football and things like that. Even though they were in the same building the atmosphere in the two offices were totally different. In the one with the older Engineers in it was a lot more quieter sort of get your head down working but in the other department it was a lot more relaxed, more chatty, bit more of a laugh, you could have a bit more of a laugh with your Manager. Two different cultures really.

Every company is different and a lot is based on personality of individuals. The work had to be done but at the same time you could have a bit of banter between yourselves.

Interviewer What would you do if you had a technical problem?
F Depends what it is really I suppose. Weather you’ve already got knowledge of what you are doing. A lot of mumbling, can’t pick up from the tape.

E In each project team there’s sort of like a hierarchy. Obviously they come to me and say this is what we want you to do and basically the Project Manager or the Principal Engineer or whoever the Lead Engineer would give me a brief of what I had to do and what was required, let me know if I had to see anyone who had particular expertise in that area. Because of the nature of the work they are doing there are different levels or documentation and because I was doing a lot of software especially in the first six months the software specification basically outlined in some depth what each part roughly had to do. It was quite structured in that way. With working for clients as well all this documentation is agreed with clients beforehand. Which is a good thing because it takes away a lot of the pressure, you know what you’ve got to do and you know what the outcome has got to be. You’ve got to get round problems sometimes.

Interviewer Is this what you want?

It could vary with the jobs that you have to do and the company that you are working for.

Interviewer What are your thoughts on become and Industrially based Engineer?

E Not sure to be honest. It’s difficult to say without being involved in any other field really. I enjoyed it when I was there but weather or not I would enjoy it anywhere else?

Financially I would look to do another job really. But I know that I can do that job and it’s interesting. The work I did was interesting and at the level I was working at it was interesting and challenging. So from that aspect yes I could see myself going into the industry and forging a career but there were some aspects that I didn’t like. After speaking to people who had worked there for a long time I wasn’t that sure, they were saying sort of have a look around and see what else is out there. Make sure that you take opportunities that arise. Certainly in that industry it’s up and down, profit margins are very slim now and the areas of the world that you are prepared to work in. If I went back there I would have to be prepared to work in the Middle East. The people I worked with had worked in places like Libya and Korea and Iran and Syria. So you would have to be prepared to live out there.

F I would like to work my way up. Where I worked there were people who had come in as graduates and worked there way up to senior project manager level. But it depends on the individual.

E Most of the people that worked there had been once or still are Engineers. A lot from different background, sort of worked in Power Stations and been apprentices and stuff like that.

Interviewer Anything you would like to add about your placement?

E Overall I think it’s a positive thing. It’s definitely a good thing that the University offers. To go out to placement. Just for a year. Even if you have a negative experience like you didn’t enjoy it, even if I didn’t enjoy the work it would have let me know that I didn’t want
to go into that sort of Industry. So you would still get something positive out of the experience. It’s definitely worth doing.

Interviewer Thanks very much.

Interview 3

Interviewer Will you introduce yourselves please and give some of your background?

F I’m Age 35. Obviously worked in industry before. Mainly Engineering firms but I’ve done more manual. I did a HNC, I came from a City and Guilds to a pre 6. Then I did my HNC at Chesterfield College.

G Age 21. Did GCSE A Level and then University route. Always wanted to do Engineering, decided to do an Engineering based work or job right from doing my GCSE’s, did 3 A Levels and got into University that way. Never worked in industry.

F I did my placement at [an instrument company], got it through the Placement Office they sent me for an interview, I think about four of us went and I got the placement that way. It’s a [physical parameter] measurement company but I was actually working on something they hadn’t done before, it was actually imaging. I mainly just did testing.

Interviewer How did you find the interview?

F I thought it was very similar to an interview for an ordinary job. Well mine was anyway. He asked me various questions and he has a little pot of components, resistors and things and asked me what they were. It was quite realistic I think.

The placement was alright but I think more for someone who hasn’t worked before like G. Because I have worked before it probably wasn’t that helpful.

G I worked at [a media electronics company] in Sheffield. It got my placement by handing in my CV to the Placement Office. The Placement Office rang me saying they had a company that was interested in interviewing me. I went round and had an interview within a week. I rang up the same day and said I was very interesting in having a job with [a media electronics company] and she said yes. I was quite impressed as apparently there were about 21 people who had been interviewed.

Interviewer About the interview?

G It was pretty nerve racking. There was a panel of three that I had to impress. They asked a lot of questions about the course and about me. I asked me what I had to offer the firm. I just basically sold myself.

Interviewer Any technical questions?

G They wanted to know what I was doing at University. But no major specific technical questions.
F His interview was more formal with it being a panel of three but I just had mine one to one with my supervisor. Not as nerve racking.

Interviewer What do you think you got out of placement?

F As I have said I don’t think I got that much about learning about work as I have already worked before. I think I got some experience in Engineering just in general building circuits, because you don’t do a lot of that at University unless you’ve got a background in that kind of work which I haven’t. I’d worked in Engineering but more working with machinery so the actual building up of circuit and testing circuits were all good experience to me because there isn’t a lot of time to do that sort of thing at University. I think I already have kind or organisation skills and things like that.

Interviewer What made you go on placement?

F Mainly to get the experience in what I have said, general building circuits as I felt I hadn’t got enough experience in that sort of work. Just to go out with a degree, I thought I needed a little more experience.

G Obviously with me having no work experience in industry before I found it a fascinating experience as far as that was concerned. I didn’t know what to expect at all, sort of working at a professional level and I also found out how important the Engineering part was to the company because it was a [media electronics company] company I was working for which would cover football games and things like that and basically you’ve got these trucks that rolled up that were portable work production studios. It was up to the Engineer to set it up. It was like and empty carcass to the Engineer. Obviously on live transmission there is so much equipment there it all seems to fall over as soon as you start doing stuff with it. It was all up to the Engineer to do modifications and maintenance work. It did make me realise how important Engineering is.

Interviewer How technical was it out on site?

G It was very much systems engineering, you had all this equipment in the trucks that sort of consisted of DA’s etc, I can’t really go into it in too much detail. But it was a lot of patching up and routing signals by matrix’s and stuff like that so it was more systems based. You needed an overall picture, you needed to understand the importance that all the equipment had.

It was all on cable, some jobs we had to hire in cable obviously if the kit we borrowed went wrong we just sorted it out. It was up to the Engineer to sort it out. It did need sorting out a lot of the time.

Interviewer What did you get out of the placement?

F I think I got a lot of practical skills out of it and that’s what I wanted to get out of placement. I suppose people who have not been in work get a lot more, there going to get a lot more out of it as it’s a whole new experience. But I’ve had quite a lot of work experience, I am quite old for a student really, it’s quite different for me.
Interviewer  Has it given you an idea of what you want to do when you graduate?

F  No not really. Just go into Engineering. I’ve always wanted to go into the hardware side of Engineering not the software and that’s what I was doing on placement. Just reinforced what I thought I wanted to do.

G Working with the systems a lot at [a media electronics company] its more the hardware side I would like to get into rather that the software side.

I thought it was a fantastic experience and it was a big eye opener, now I have a better idea of what is expected from me when I do reach the proper world. It’s just like simple things like how to interact with colleagues and superiors.

Interviewer  Did you find it different dealing with people you were working with?

G  Obviously the clients only came to us when they wanted something doing and I had to speak to professional level and also we sort of had to learn how to communicate engineering principles across in a way which they would understand. With engineering colleagues we could talk engineering concepts and they could understand what I meant. It’s like two different levels of language that you had to learn.

But communication relating to colleagues is a skill which I have learnt.

Interviewer  What did they get out of you?

F  I think they got a lot of work done, a lot of testing and things like that which obviously an Engineer would have been doing. Building circuits and things. There was a lot of administration work finding new components which an Engineer could do. I did a lot of that sort of work. I was taking a lot of pressure off the Engineer I was working with. He felt confident that I could go away and do the work. He wasn’t a Chartered Engineer. He was a development engineer, he had a degree and a Masters degree. They have had to cut a lot of staff back and development is now very small. When I first went into the company there was a lot of redundancies which cause a lot of bad atmosphere. They did lay people off in our department. They have now taken away pensions and things are really tough. There is not a lot of development work coming in. [an instrument company] the products that they produce are top quality and a lot of firms are going for cheap products now, not as accurate but a lot cheaper.

G  At the end of the day its cheap labour and the end of the day that’s what it is. Obviously because you’re a student you are enthusiastic as well. They made it clear from the start and would be shadowing people straight away and getting my hands dirty as quickly as possible. I did a lot of practical work. One of the things I was most proud of doing whilst I was there was building up a small TV truck. They gave me a few testing jobs first. I think it was quite a lot to get out of someone. I was always eager to patch up the trucks whilst the other engineers had other more pressing issues to sort out.
Its like an interview as well, where I went with it being such bad circumstances but if it’s a firm that really want someone and they know what they are like they could sponsor you for your last year or ask you to come back once your degree is over. So that’s good in some cases.

Interviewer Did you have enough work to keep you busy?

F Yes I did. They always found me something to do despite the circumstances.

G Whilst I was there well toward the end the work was getting greater and greater and staff in other fields were leaving which was putting a lot of pressure on other people to do their jobs. But a lot of the time I was out on field anyway, there was always load of maintenance work. I used to shadow the engineers. My Manager was the Engineering Manager he was the ultimate boss.

Interviewer How were working relationship between you and the people you worked with?

F It was a very small department with about 10 people and I got on fine with everyone, you could go and ask anybody anything and they had time for you. A lot of companies wouldn’t be like that as there is so much pressure on everyone to get the jobs done they wouldn’t have time. But it’s not like that at [an instrument company]. I was in regular contact with Development Engineering, it’s a very small place.

G [a media electronics company], it is only a small company anyway but I got on with everyone fine. Everyone was always willing to sit down and go through things. Also being on the road a lot you end up staying in a lot of hotels and you obviously get to know people socially as well as professionally which always helps.

Interviewer Was there a social side to [an instrument company]?

F I did go out once to Wales, just to stay over one night to repair a instrument so we did go out, but not really that much. There wasn’t so much socialising. They were going to have a big BBQ in summer but there wasn’t enough interest so it was cancelled.

Interviewer How did you work with the engineers in the company?

F The engineer would tell me to do something, a lot of it was testing like drift testing and things like that, so he’d tell me to go away and do it and leave me to get on with it. If I had a problem I would go and see him. I would write the results in a log book and then put them onto a spreadsheet and try and produce some graphs. He may have changed things into a format which he wanted. The reports were used in a [design archive document] which was all the design documentation, these were product which was still being developed and the literature was kept in a file so people could refer to them.

G It started off shadowing engineers all the time. It was basically lessons, as they wanted me to learn as fast as possible and get me out on the vehicles as fast as possible. But I used to be patching stuff up and then later on it was a case of they gave me a job to do and asked me if I was OK being left to do it.
Interviewer  How did you judge the success of a job you did?

G    Well if the Director was smiling!

The Engineering Manager used to review the jobs and there was also the Managing Director used to do e-mails which were put on a big notice board of things that went wrong. Things that needed to be improved upon for later jobs. These were directors or clients comments. You certainly got feedback on jobs. These e-mails led on to modifications.

F    We had reviews, it was a totally different set up. We were prototyping so once we got to a certain stage all the software engineers would get together and ask if anyone had any other ideas which could be brought into the project. Then you would pass around the spreadsheets and just say this is how you did it etc.

Interviewer  Has the placement experience changed your view of work?

F    It hasn’t changed me at all as I knew what to expect before I went.

G    I wouldn’t necessarily say its changed my view because I went into this placement not knowing at all what to expect. Its made me realise how integral to a company especially with a company so reliant on technology as [a media electronics company] engineering is.

Interviewer  Has it put you off?

F    No it’s not put me off.

G    No certainly not. It’s made me realise the importance of what I am doing.

F    It just makes me wonder how many Engineering jobs are left in this area. Because [an instrument company] were struggling and I know a lot of Engineering firms that are.

Interviewer  The placement office didn’t have enough students to match vacancies this year.

G    Is that something to do with students not wanting to do these particular courses. Wanting to do more Business Studies course?

Interviewer  [interviewer explains some of the national and local context of engineering including demographics].

G    So as far as we are concerned we could be quids in?

F    At [an instrument company] they had two people who did [specific complex instrument] which is quite complicated and they had one guy who is in his late 50’s and had got to retire in two years and another guy who was 25 with a PhD. They made the young lad redundant and kept the older one on. That to me was mad.
Interviewer  Anything more?..... Thanks.

Interviewer  Would you introduce yourselves please and say something about how you got to the university?

H   Age 21, I came straight from A Levels to Sheffield Hallam
At School in [northern city]. Placement was at [a car manufacturer] where they made the
[specific small car].

J   Age 21, come from Sheffield, went to college to do A Level and chose SHU as my first choice. Placement at [automation and control consultancy] who make control systems for [transport systems]

K   [electronics design consultancy]. Took a year out after A Levels and SHU was my first choice. I come from [small northern city]

L   From Sheffield. I did my A Levels, I took a different route I took a Foundation Year before I came onto this course. Age 22
Placement at [automation and control consultancy] with K doing control systems.

H   The first six months of my placement weren’t very good. I was doing a lot of analysis, results that we got back from testing cars. So that wasn’t very good. I was bored and was doing the same thing over and over again and then towards the end it was good. I got given projects but one of them was purely by chance really. The guy didn’t have time to do it so they said like you get on with this and I did a good job. So I got given more. I think if this guy hadn’t got too much on his plate I would have been doing the same thing for the next six months. My knowledge of what I have learnt at University didn’t really come into my placement. I was sat working on a PC doing data analysis, making charts and stuff like that. So that was a bit annoying. Coming back 12 months later and trying to get back into the swing of things, trying to refresh your memory.

Interviewer  What department were you in?

H   I was working in the assembly building in electrical and process planning which basically means taking care of anything electrical. Any electrical part that goes wrong on the car we have to test or make sure its tested before it leaves and other things we have to plan for new models coming in and new parts and because is such a new place really its only been going a few years we have to do a lot of maintenance work because the maintenance guys were really mechanically minded, there was one guy that had the electrical knowledge to actually do some of the maintenance on the PCs and test stations.

Interviewer  Who did you work for?
He was called. He was good, he was basically a workaholic he spent most of his time at work, he’d be there at 6.30am and probably wouldn’t leave until 5.30pm. Coming in as a first impression I thought they were all workaholics but then you got into the swing of things and his management style was that he would make you want to work for him, you didn’t feel under pressure to work for him, he didn’t pressurize you, he made it that you wanted to work for him and you didn’t want let him down which I thought was really good and was good for myself. He was only a small guy but when we came all the students were quite scared of him and some of the other managers. He was about 5ft 7 and I’m other 6ft so it was a bit weird really. It was all a bit daunting but after a few weeks it was fine. So that was good.

Basically I was working on Scada systems on a tunnel in [specific city] When I started there was another student that was about to leave and basically he was there for a couple of months and he showed me the ropes basically what work I would be doing all to do with programming, databases and basically using animation on the screens.

How did you find the placement?

Very good, enjoyed it. Sometimes it did get a bit laborious when you writing in code for something and you’ve already written it again and again. But you learnt a lot.

I found it interesting, well you know like you had to think about what you were doing and if it didn’t work why didn’t it work if there was another way try it again so its like interesting like that. That’s why I did engineering I want to know how things work and why they work. In that respect it was ideal.

I was on a project. It’s like a brand new set up. I came into the project at an awkward time as it was getting to the stage that it was almost finished and there wasn’t a great deal that a student like me could do. I think that was unfortunate for me as some of the other students had a lot better experience than what I did. A lot of the tasks I was doing was just like day by day admin work and modification work like one of the guys would find something wrong and I would have to modify it. At first it was really interesting and I was getting into it and them some tasks came along and it was purely manual which I didn’t have to think about and I just got like really bored really quickly.

Did you have any support?

Well in a sense there was no support needed it was just a task that had to be done and as I was well aware of being a student and a project that was running to a tight deadline I had to do the job as they couldn’t afford a person with more experience. It was quite a hefty project.

Who were you working for?

[specific individual] he was really good and tried to give me good stuff to do.

Why was he really good?
K Basically the way he handled it, even though he was snowed under with work he did actually make the effort to give me good jobs to do. It was just unfortunate the way it worked out. With some of the jobs that had to be done.

Interviewer Why do you think he did that?

K Partly because he was quite interested in keeping the students busy. He could see me doing a lot of manual jobs and he realised it was the best thing and he realised that this wasn't the best thing and he tried to find me something else.

Interviewer Was that placement appropriate?

K Er, it’s a tough one, for me it probably wasn’t as appropriate as it could have been. There were 3 students and we all got put on different projects so it was sort of pot luck. One of them was on [specific project] and found it really beneficial. I can’t remember what the other one was on but he also found it really beneficial. It was just pot luck really. I think video signals as well, its not something that’s particularly interesting really. It wasn’t the best placement to start.

L I’ve just done different projects and that [tape noise]

Interviewer What did you think about the placement?

L I thought it was an excellent placement.

Interviewer What did you get out of the placement?

K Generally sort of same stuff I mean I improved my knowledge. So as far as knowledge relevance to that product, I mean if you were to test me on that product I would have a lot better knowledge on that. Personally having taken a year out I would rather not have done a placement and got my degree finished but because of the way this was the first time it ran it wasn’t really an option.

Interviewer Did you gain any transferable skills?

K Er, I’m a lot more confident and adept to using testing equipment that going to benefit me. Looking at video inputs and outputs and general things like that, I looked at a few components and things like that. So that’s all transferable and I can look at circuit diagrams with confidence. I have a better understanding at looking at circuits diagrams, its not as daunting.

J Knowledge, well I suppose programming wise that’s mainly what I did, I know we did embedded microprocessor systems which we did in the second year and then we used C++ at PDS. Basically programming wise I feel a lot more confident programming I suppose.

Interviewer Did you have to deal with a customer at all?
J  Er, I didn’t deal with any clients I only met contractors on site. So no client interaction. There was my project manager and I got along with him fine, he didn’t say a lot but that’s OK. But er, a lot of the time we didn’t see the Engineer as he was off ill, alcoholic or whatever! Well known fact. So not having another person working along side me I sometimes found difficult when I needed to solve a problem, because I didn’t know what PLC engineer would want me to do, in terms of how they would want things doing. Not having a project manager to say do it this way. But when somebody else came in to do the job it was more complicated because we would end up doing everything another way and it would just be a complete mess. So a lot of the time I was dropped in it So sometimes it was difficult.

Interviewer  How did you get round that?

J  Well I left the project and it wasn’t finished. Basically they got a contractor in, to say you sort this out, I want it like this. Basically he told me what to do which was fine, I was abit peed off about being told what to do when I had done it before but at end of the day it wasn’t my fault, someone should have been there to tell me what to do.

Interviewer  What was the contractor like?

J  Sound, we got on really well. Basically if you’re a contractor you have to know what your doing. I could have learnt a lot more from him on PLC codes wise but didn’t have time.

Interviewer  What did you get out of the placement?

H  I’m a lot more confident, towards the end of the placement I did have a problem speaking to senior people because we had to do a presentation in front of the \textit{[director level]} and all the students had to go up and say what they had done and whether it was worth it for \textit{[a car manufacturer]}, to come and work for them. Say the type of projects we had done whether they had been cost benefits of doing it, things like that so that was quite good to do, doing it in front of them and to say we’re not just here to mess around like some of you think we are.

H  Because they had been some people who had been unhappy on their placements, \textit{[specific internal company problem]}. I didn’t have an interview to go there which was a bit weird, unlike some of the other people in the office. And we didn’t really have set tasks when we got there and it would have been nice to know what we were going to do, which they have to do now, the managers have to say, well I want a student because they are going to do this project. So now its a lot better for the news students than it was for us. Basically because one of the people that I was working for was a guy that had been there for 40 years and he didn’t like to give any secrets away basically and then the other guy was leaving. Basically there was me and another student out of about 50 who knew how to wire \textit{[specific car]} electrically. Other people in the department would ask me questions things, like where parts would fit in, how they would be tested that kind of thing and that came on to one of the projects that we did towards the end which was basically about checking readings on outputs and stuff like that. We got to mess around with car parts, basically taking the dials out put them into the parts they relate to in the car see how we could test them in that way.

Interviewer  What did they get out of you?
H Out of me? I think I was a good part of the team, basically all the stuff was done on time apart from one project which was three weeks late. But then again it couldn’t have been implemented any other time than when we did it anyway.

My personality I like to think, my manager liked my sense of humour because he was sarcastic really and I think I worked hard for him.

Interviewer What did they get out of you?

J A lot of work! They definitely got their monies worth I would say. I really worked hard, I did a lot. I think the nature of the project it was running behind when I started and its still running behind now. The Manager didn’t seem that concerned at time. If I took a long time about doing something, like try and teach myself how to do something he didn’t seem to bothered about that. I think he was more bothered about other matters to do with the project. I think it did have an effect on the company.

K I completed all my work to the deadlines. They basically, they used the students as more technician type people. If anybody wants anything ordering or a modification type thing doing they’ll just go to the student straight away.

There was some technicians in the company. I did all the work that they set me. But like J says they definitely go their monies worth.

L Like they say, just had a lot of work on. Used to do 70 hour weeks and stuff which I didn’t mind because I needed the money. But also the jobs needed doing.

Interviewer How has the placement changed you?

L It’s definitely motivated me and I’ve got a bit more of an idea of what I want to do. It helps as its all on your CV. The fact that you have experience.

K I think the experience is good but in another respect if I go for like an aerospace job I don’t think they’ll be bothered if I’ve got any experience or not. On the placement as a whole I think I have learnt a lot. I think I’ve learnt stuff more job related so its changed me like that, more sort of work related. I’m more ready for work after University and I know more what to expect, like L I am sort of more motivated to getting a good degree now so I can pick and choose jobs rather than sort of have to take jobs.

J More independent because basically I live at home but me and L moved down to [specific city]. So I was like standing on my own two feet but like living in Sheffield is not like standing on your own two feet really, but just more independent is how its changed me. But apart from that I don’t know.

H Er, I think pretty much like the rest of them, I’m a lot more motivated to do my degree now, I really want to get it finished and do really well. The way that they worked there they were really pushing you to motivate yourself and do good work, so in that respect its good. I
wouldn’t mind working for them again, so to do that I would have to learn German and then I wouldn’t mind travelling as well. Really I wouldn’t mind going back and working for them providing I can do that.

Interviewer What about working relationships, how did they develop?

H With the people in the office we usually went out once a month for a meal and then go round [specific city], so they developed that way. Then I was playing football, I played football with one of the apprentices and then I used to work on the line a few times. As an induction you went down and you worked in the areas the department was responsible for, so I developed relationships with people working on the line. Because I had to speak to the rectifier and the operators on the test stations so you basically kept asking questions, like why you think this problem is occurring and things like that.

J I suppose with it being a small company there were only about 20 people if that, so the first day you get sat at a desk, read all the manuals do this and then I suppose as you develop you have to ask such and such a person how do you do this, so you get to talk to people and so on. But realistically I had probably been to practically everybody in the company with a problem with it been such a small company.

K The ones that were sat around liked developed because you were sat across from them, other than that it was a very pressurized environment on the projects, like eyes to the screen or the board you were working on, so even like, it was a team environment everyone was doing work on their own. You weren’t inclined to disturb people because of how tight the work was. So it was hard to go round and talk and get feedback because of the amount of pressure people were under.

L I made quite a few friends really with it being a small company there isn’t anyone there that you don’t know or talk to. We used to have a clubbing team and we had a company bonding day which was like sailing and canoeing and stuff like that. I did a half marathon with one of the blokes that worked there and I’ve been out with them since as well. They phoned me up for the Xmas do and that. There was always a bit of banter between everyone and I’ve never really struggled getting on with anyone because I’ve worked in various environments before.

Interviewer How has that placement experience changed your view about work?

J It was different to part time work because it was something that I actually cared about. Part time work I was a bit more flippant and I wouldn’t probably put as much effort in as what I did at [placement company]. Part time work I’m only really there for the beer money but on my placement I was more there for my career and for myself.

K I don’t know, I find something very off putting about sitting at a desk all day. I’d rather be sort of be up and about doing something rather than just sit at a desk. It has changed my opinion, I don’t know where I want to go after my degree, so its changed in that respect.

J I suppose they teach you like project management and all that, I suppose the nature of engineering is projects, a lot of it. Where I was working in project, like Andy said you
wouldn’t want to be sat at a desk for like 52 weeks a year, but I practically was anyway because I didn’t get out on site once, because the other side of the job was like wiring up and stuff, I would consider doing it, like being a Scada engineer.

Interviewer Had you worked 9 to 5 before?

J Well only in the summer. As L was saying in part time work your only there for the beer money but where as you are there, well the reason I did this SW course was to get experience which helps you when you finish your degree to get a job.

H It’s kind of shown me which direction we’re heading in when we finish our degree and if we get jobs. I have had other interviews with people and they were in planning departments in different companies. So it seems like that’s the direction I am probably heading into.

Interviewer Anything anyone wants to add?

[specific question on university policy]

K For me personally I don’t think, I think I’ve forgotten too much to have made it worth while, because now I’m going to have to work extra hard to get up to the standard that I was as when I left the second year.

L It was definitely worth doing.

K It is worth doing if it is something that you like and you know it’s the direction that you are going in. But if it’s a direction you don’t want to go it also helps you.

I think it would be just as beneficial if not more, to have the same sort of thing but go straight to your third year and then find a placement for a year after you have finished your degree. Sort of a graduate placement. So at the end of the 12 months you might have a job at the end, instead of having to come back to University to study again, I think after the second year because you have learnt so much its best just to keep on and go straight through with it. But because this is the first year our course has been run we couldn’t have done that unless we would have all said we don’t want placement we just want to go on to our third year.