

A case study evaluation of the English language progress of Chinese students on two UK postgraduate engineering courses

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This study analyses the English language usage of a cohort of Chinese postgraduate engineering students in academic and extra-curricular settings in the UK. It finds there is a lack of opportunities to use English in extra-curricular settings and discusses who holds responsibility for the social well-being of international students.

[Click here to read the Introduction to this volume which includes an appraisal of this research, its context and impact.](#)

ABSTRACT

Existing research that portrays the socio-cultural experiences of international non-native English speaking students in a negative light has not explored the relationship between those experiences and English usage. In this study, the English language usage as experienced by a cohort of Chinese postgraduate Masters engineering students in both academic and extra-curricular settings has been documented over a 10-month period. The experiences of students on two Masters programs were compared: (1) a Masters by Research on which Chinese nationals were the only students and; (2) a taught course which included a minority of other non-UK students.

Opportunities to use English and to interact with native English speakers were minimal in extra-curricular contexts. Consequently, social integration was discouraged and most students became dependent upon the programs for opportunities to improve their English. The chief opportunity arose in a group design project which successfully encouraged students' speaking skills but details of implementation had unexpected effects. Different measures and assessments of students' English language proficiency, including the students' own opinions, indicated improvement over 10 months. However, the lack of opportunities to use English in extra-curricular settings was associated with a lack of confidence and supported research that emphasises the link between cultural and linguistic knowledge and competence.

The findings raise issues concerning who holds the responsibility for international students' social well-being and echo the contemporary debate in the higher educational literature reflecting conflicts between consumerist, managerial cultures and the liberal educational tradition that encourages independence of thought and action. These issues are discussed and recommendations are proposed which assume that responsibilities are shared amongst a variety of stakeholders. As the case study approach limits wider generalisation, the recommendations principally relate to the research site, although similarities of context may encourage a degree of generalisation and applicability to other settings.

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1 INTRODUCTION

1.1 The internationalisation of higher education – global student flows

The internationalisation of global higher education shows little sign of abating, driven by a combination of technological progress, the rise of the knowledge-based economy and a recent impetus from the credit crisis. The scale of student migration is remarkable, prompting analogies between the free movement of goods in global trade with that of human capital in an educational context, although the economic benefits to developing countries have been questioned (Adnett, 2010). Based upon OECD estimates, the number of students seeking degree-level study beyond their national boundaries has risen from 0.8 million in 1975 to 3 million in 2007 (OECD, 2009). More recently, Project Atlas, which tracks the flow of tertiary students across borders, claims that there were 2 million internationally mobile students studying abroad in 2000, compared to 3.3 million in 2009 (IEE website, 2011). The eight most popular destination countries for international students in 2008/9 were: the US with 20% of international students; the UK with 13%; France with 8%; Germany, Australia and China, each with 7%; and Canada and Japan each with 4%. The situation was similar in 2001, apart from the absence of Canada and China from the list of host educational nations. However, the US has lost share during the period, down from 28% to 20%, while elsewhere, the percentages of international students have remained more or less stable.

The principal donor country is China with almost 420,000 students studying abroad (Motivans, 2010), of whom 127,628 were in the US and 66,172 in Australia during 2008/9 (OECD, 2010). Consequently, the largest foreign national contingents in the chief destination countries are Chinese, with the exception of France where Moroccans are in the overall majority. The most popular destinations for Chinese students are the US, Australia, UK, South Korea, Japan, Canada, Singapore, New Zealand, France and Russia. The only other country that can compare with these student outflows is India, which shares a similar population size and stage of economic development with China. It is significant that of China's 10 most popular destinations for its higher education students, six offer instruction in English, including the top three.

Of course, this does not imply that all campuses in destination countries will possess similar percentages of Chinese students, as a variety of factors will influence the choice of campus as well as country. Subject type is an example and here the statistics are less readily available for destination countries. Globally, the most popular subject of study for international students is business administration, but these students tend to concentrate in specific countries and campuses with reputable programs. Science and engineering subjects attract 29% of all international students (Motivans, 2009), but further geographic breakdowns are unavailable. Nor do figures differentiate between the numbers of international students in undergraduate, postgraduate taught and postgraduate research programs. Adnett (2010), however, claims that there are higher proportions of international students in 'advanced research programs' in Australia, France, the US and UK, although figures for importing countries are unavailable.

1.2 The internationalisation of higher education – the UK perspective

The UK higher education perspective reflects these global movements of students across borders, such that the growth in the number of international students at both undergraduate and postgraduate levels has outstripped recent expansion within the UK higher education sector. This has been due, in part, to the need of UK higher education institutions (HEIs) to seek financial stability during a period of sector expansion and diversification when home student fees have been statutorily limited. As international student fees have not been subject to the limitations imposed on home students, HEIs have looked to international students, especially at the postgraduate level, to make up any financial shortfall in

teaching activities. Since 2002/3, fees for Masters programs have risen by 33% for UK and EU students and between 37–42% for students from elsewhere (HEPI, 2010). Targeted policy initiatives have also directly contributed to the expansion in international student numbers through two Prime Ministerial Initiatives (PMI1 and PMI2), (DIUS, 2011; British Council, 2011).

Figures from the UK Higher Education Statistics Agency (HESA) confirm the rise in student numbers and further show that much of the rise in international students has taken place in postgraduate programs (HESA, 2011). At the start of PMI1 in 1999/2000, the total number of postgraduates studying in the UK was 408,620, of whom 23% were classified as non-UK. For the year 2008/09, postgraduate numbers rose to 536,810, of whom 8.25% were from the non-UK EU and 25.91% from elsewhere. It is the latter group that have contributed most to the increase, as the percentage of non-UK EU students has remained relatively steady since 2002/3 when the separate categories of origin were introduced. Thus, there has been both an absolute and proportional rise in non-UK students over the past decade, although the rate of increase has stabilised over the past two years.

HESA statistics do not, however, differentiate between research and taught postgraduate students but two Higher Education Policy Institute reports published in 2004 and 2010 (Sastry, 2004; House, 2010) demonstrate that the rise in student numbers is substantially due to international enrolment on taught Masters programs. While the postgraduate sector has grown by 12% between 2002/03 and 2008/9, Masters programs have increased by 27% and doctoral programs by only 9%. More dramatically, the later report claims that 50% of UK Masters students and 44% of doctoral students are now from overseas (House, 2010). The most popular subjects at taught Masters level are business and management, followed by social science and science, technology, engineering and manufacturing (STEM) with a reversal of the pattern for UK doctoral programs. The 2010 report notes the decline in UK students on computer science and engineering taught Masters programs where international students are now likely to be in the majority.

Since 2002/3, China has been the principal donor nation for HE students to the UK (OECD, 2010). In 2008/9, 50,460 Chinese students were studying in UK HEIs; this represented around 9% of all postgraduate UK students in that year and 12% of all international Chinese students globally. Unfortunately, no further breakdowns by degree level or subject are available other than the fact that 50,000 international students of all nationalities took engineering courses in the UK during the same period, about half that enrolled on business and management programs. However, considering the size of the Chinese student contingent compared with the numbers of international students on UK STEM courses, it seems plausible to assume that Chinese students are strongly represented among those subjects, given China's drive for industrial development and rise in manufacturing.

The rapid expansion, diversification and rising international student profile within the UK tertiary sector raises questions about the quality of UK Masters programs (HEPI, 2010). The one-year UK Masters, though attractive to students, must ensure equivalence with two-year Masters programs on mainland Europe. As the statistics show, it is possible for UK students to be in a minority on some taught postgraduate programs so it follows that English language proficiency of non-native English speaking (NNES) students has become an important aspect of degree standards for all students, regardless of nationality. Unfortunately, there are no figures available for the number of non-native English speaking students in the UK but the significance of the problem can be gauged from a recent political debate about falling degree standards and students' English language proficiency (Select Committee, 2008). Similar concerns about selection, entrance requirements and the provision of English language support for NNES students have been debated politically and academically in Australia (Coley, 1999). If the UK is to maintain its position and status as a major provider of international higher education then evidence is necessary to convince students of whatever nationality, UK or elsewhere, of the maintenance of degree standards through the rigorous selection of, and adequate support for, NNES students.

2 LITERATURE REVIEW

2.1 Student entry requirements and selection in the UK

The first section of this literature review presents a brief summary of the research on student selection and entry requirements in the UK.

As part of entry requirements, UK HEIs routinely employ tests of English language proficiency as a measure of an applicant's English language proficiency, with the IELTS Test being the most commonly cited. However, there is considerable variation in the required test scores depending upon the institution, the linguistic demands of the course, the type and level of degree and the extent to which the institution provides ongoing academic English language support. In setting test scores for entry requirements, HEIs are not helped by inconclusive research results that have sought to establish a predictive relationship between IELTS entry test scores and subsequent academic progress (Criper and Davies, 1987; Cotton and Conroy, 1998; Kerstjens and Neary, 2000; Lee and Greene, 2007). Typically, HEIs require entry scores of IELTS Band 6 or 6.5 but research findings are unable to define a clear cut-off point below which a student will struggle to progress academically. Methodological issues further cloud interpretation and critics claim that the research design underlying predictive validity studies misrepresents the reality of the complex, multifactorial, dynamic process of learning. Consequently, it is more widely accepted that linguistic ability is only one influence among many upon academic progress (Rea-Dickins et al, 2007; O'Loughlin, 2008).

This complexity is echoed in exploratory studies of the decision-making practices of UK HEI admissions staff (Banerjee, 2003; Lloyd-Jones et al, forthcoming). These case studies have demonstrated that academic staff who hold responsibility for admission and selection consider an array of factors and circumstances in reaching a judgment of an applicant's potential to succeed at Masters level study. This is due, in part, to the fact that applicants do not necessarily demonstrate neatly categorised experiences, skills or qualifications; applicants successful on one criterion may be borderline on another. Admissions tutors take into account: motivation; academic qualifications, experience and attainment; readiness to adapt to UK HE culture; work experience; and an applicant's and referees' statements. Interviews help to probe, refute and validate information on the application form and reduce reliance upon a single test score. English test scores, therefore, contribute to, but do not determine, final selection decisions. The views of admissions staff can be regarded as congruent with the complex view of learning and academic achievement inferred from the studies discussed above, although some caution is required because of the small-scale nature of the decision-making research.

The inconclusive nature of the educational outcomes research suggests that alternative conceptual and methodological approaches to research may prove more instructive. Possibilities include greater attention paid to the learning process; a focus on students' English language development as distinct from academic progress and a more rigorous pursuit of recognised influences upon language learning, both curricular and extra-curricular. Examples of the latter identified in the literature include: motivation; subject discipline; program structure and implementation; ongoing language support; and socio-cultural context and adjustment (Rea-Dickins et al, 2007; Trahar, 2007; O'Loughlin, 2008; Brown, 2008). More broadly, language learning is dependent upon opportunities to apply and practice acquired knowledge and skills. Such opportunities may be explicit within the curriculum but many may arise in private study or in extra-curricular settings and all will be dependent upon the students' willingness to engage with the educational and social demands made of them.

2.2 Focused literature search

The research literature was, therefore, searched for studies that examined how NNES students' English language develops throughout the duration of a degree with respect to the dynamic interplay of curricular and extra-curricular influences, opportunities and circumstances. More specifically, three types of research were sought: studies based upon a process perspective or a longitudinal rather than cross-sectional design; studies examining socio-cultural influences upon students' academic and/or linguistic progress; and, thirdly, research exploring the experience of Chinese students. The latter criterion was selected because of the size and global relevance of current Chinese student migration, the availability of literature pertaining to Chinese students, and the possibilities within the local context to explore the postgraduate Chinese student perspective. As the literature on international students is largely empirical and extensive, the aim of the search was to provide a rationale and context for the current research project rather than to present an exhaustive and authoritative review.

A somewhat random assortment of papers emerged from the search with only a single paper incorporating all three criteria (Zhou and Todman, 2009). Studies are located in the higher education sector in English-speaking countries with the greatest experience of international students: the US, UK, Australia and New Zealand, but few give detailed descriptions beyond subject and degree level of the courses students are taking. Some studies report the aggregated views of undergraduates and postgraduates, others are confined to one or other degree level. Similarly to the treatment of curriculum, much research assumes that the concept of 'internationality' is both undifferentiated and unproblematic, mixing a range of nationalities within the same research. Another inevitable distinction is the range of research methods employed. Although the majority are questionnaire or interview based, ethnographic, mixed methods and literature reviews are also represented. Given the range of underlying assumptions, methodologies and contexts in the papers under review, achieving a clear synthesis is almost certainly over ambitious. What follows is an attempt to summarise the key findings while acknowledging potential contradictions and omissions.

2.2.1 Language, socio-cultural and academic experience

Andrade (2006), in reviewing a largely US-based, literature on adjustment factors for international students, defines adjustment as the 'fit between students and the academic environment' and differentiates this from academic achievement which she equates with 'the evidence of learning'. She concludes that English language proficiency coupled with cultural knowledge is the most important contributory factor towards adjustment. International students experience more stress and loneliness and make fewer friends with host nationals than domestic students – outcomes that might further limit students' opportunities to practice and develop listening and speaking language skills. By contrast, she found no clear relationship between language proficiency and academic achievement.

This picture of the stressed, isolated international student recurs in the literature of many other studies, regardless of host country, nature of degree or nationality of student. These include a national Australian study of loneliness in international students (Sawir et al, 2008), taught Masters postgraduates in the UK (Brown, 2008), doctoral students in the UK (Walsh, 2010) and Asian students, including further education students, in New Zealand (Zhang and Brunton, 2007; Campbell and Li, 2008). A 2004 UKCOSA survey of almost 5000 international students in the UK, although more optimistic in tone, noted that students were more likely to socialise with co-nationals and that only 15% of Chinese students reported having UK friends (UKCOSA, 2004). However, students with UK friends reported more overall satisfaction with their stay in the UK.

Zhou and Todman (2009) prefer a more holistic, dynamic approach that combines students' psychological, socio-cultural and educational development in their longitudinal, mixed methods study of 257 Chinese postgraduates studying in the UK. They track the experiences of various perceived difficulties faced by international students such as language problems, academic reading and understanding lectures and finding new friends. Attitudes varied over time according to the problem concerned: language was a serious problem from arrival to departure, academic issues declined in significance over time as did financial concerns, whereas finding friends acquired more importance over the duration. The authors propose explanations for the various trajectories emphasising that educational and social circumstances are inevitably related and not experienced as separate forms of existence.

Brown and Holloway (2008), in an ethnographic study of international postgraduate students in the UK, characterise adjustment as a dynamic and multifaceted process. They share with Zhou and Todman (2009) the belief that the adjustment or adaptation process experienced by international students can neither be easily generalised nor predicted. Likewise, Walsh, (2010) in her interview study of doctoral science students in a single UK HEI, emphasises that within the same institution, a variety of quite different 'microclimates' may exist at disciplinary and departmental levels. However, such differences are more likely to exist in the more independent learning setting of doctoral study than in the cohort based taught Masters context.

Despite these arguments to resist the homogenisation of experience, it seems inescapable that communicative problems do not constitute the major problem faced by NNES students. This is not to claim that once mastered, all other problems fall away but rather that language subserves many other functions and activities such as social competence and networking as well as educational achievement. However, many authors do not see it purely as a language problem. Walsh (2010) discusses the relationship between culture and language, referring to 'pragmatic' competence in social interaction which combines the appropriate use of language and cultural norms of the workplace setting. She claims that students who do not acquire pragmatic competence fail to become socially integrated within the research culture, so risking the development of the isolated international student described above. The role of culture is also seen in academic writing conventions with which NNES students may be unaware (Andrade, 2006; Campbell and Li, 2008).

An important point discussed at some length by most authors is where the responsibility lies for promoting and supporting international students' socio-cultural well-being. For almost all, it is regarded as the responsibility of either the institution or, more specifically, staff members such as research supervisors in Walsh's study (2010). The justification appears to rest firstly, on the institution's acceptance of the student as fit and eligible for the course of study and, secondly, on the view of the student as a consumer with equivalent rights. It also assumes an implied link between social and academic well-being. Campbell and Li accept that a resolution between the differing values and norms experienced by migrant students may be unsuccessful, requiring students to live with some degree of inconsistency and paradox as a necessary consequence of cultural relativism. A contrary voice comes from Bartram (2007) who reports a student and staff evaluation of an international program jointly delivered in the UK and the Netherlands. Students in all years expressed their need for staff to actively support them in developing and maintaining student social networks. On the other hand, tutors in both countries were concerned to prevent what they regarded as increasing student dependency encouraged by managerialist-dominated cultures within higher education. Bartram portrays the tension as one between consumer needs, on the one hand, and the humanist educational tradition to encourage independent learning, on the other. The paper is unusual in not mentioning language difficulties as an issue.

No less is this a problem for HEIs as they respond to the consequences of internationalisation, for instance, to postgraduate cohorts whose national compositions they are unable to predict but in which UK students may well be in a minority, as well as to life-threatening security issues with which the majority of host countries are sadly familiar (Sawir et al, 2008). Yet the provision of more support for international students implies a financial cost that UK HEIs will find difficult to bear during the current cuts in public expenditure. The scope of the ability of HEIs to manage international students' social well-being must also be questioned as reports in the literature indicate degrees of ambivalence towards NNEs students from their UK peers (Henderson, 2009; Harrison and Peacock, 2011).

2.2.2 The Eastern Asian student abroad

Of the six papers related to East and South-east Asian students, three come from New Zealand, two from Australia and one from the UK. Over 85% of international students in New Zealand are from Asia so these studies reflect a concern to ensure the appropriateness and quality of educational provision for this group of students. Zhang and Brunton (2007) report a survey of 140 Chinese students at a variety of further and higher educational institutions in Auckland. The dominant problem was language, which had impacted negatively upon some students' academic aims and was linked to regrets about the lack of social interaction with host nationals. Tan and Simpson (2008) employed focus groups and a questionnaire to survey 160 Chinese students in a single HEI, which showed the importance that Chinese students attach to overall, rather than academic, experience. Security around campus emerged as an important issue for the respondents in this survey. Campbell and Li (2008) interviewed 22 business undergraduate Asian students at one HEI and found that language proficiency emerged as the main problem coupled with lack of cultural knowledge of academic practices. Again, students regretted the lack of success in making friends with host nationals.

Of the two Australian papers, Chalmers and Volet (1997), in an interview study with South-east Asian students, set out to dispel the myth of the South-east Asian student as an academic rote learner with limited critical thinking skills who neither participates actively in class nor integrates socially with other nationals. In this paper, learning in a second language is offered as the reason for relative quietness in class, the use of memorisation and the formation of study groups with international students. Zhang and Mi's more recent questionnaire and interview study (2010) of 40 second-year Chinese students at eight Australian HEIs examined the development of different English language skills across the course of undergraduate study. Reading posed little problem for the students compared to writing with which they continued to struggle into their third year of studies. Listening and speaking, on the other hand, caused problems that were largely overcome by the end of the second year. The authors attribute the pattern of skills development to the character of mainland Chinese English tuition, which focuses heavily on reading at the expense of listening and speaking. Although these Australian papers portray a more optimistic view of South-east Asian students studying abroad, it remains inconclusive whether South-east Asian students' experience and actions do, or do not, conform to the stereotypical description in Chalmers and Volet's paper. Although the UKCOSA survey suggests that Chinese students in the UK are less likely to integrate socially with host nationals, this is only a matter of degree when compared to international students from all countries.

The findings of the UK paper, Zhou and Todman (2009), have been partially described in the preceding section. However, their paper has an unusual design as it compares the views of two sets of Chinese postgraduate students. Forty-five students from two Chinese universities came to the UK as an organised group to study either IT/software engineering or English for professional development. The remaining students (194) came to the UK individually from a variety of Chinese universities and studied various disciplines. The students studying in a group reported more initial concern with local accents, food, travel and accommodation which was interpreted by the authors as a preference for social reliance upon group members rather than the more exposed situation of individuals who would have to use their own initiative to solve problems. Similarly, there was a statistically significant

change in students' attitudes towards academic reading and understanding lectures between the two types of students. Concerns about both tasks declined among the grouped students between leaving China and arriving in the UK. The reverse was true for the students travelling individually. Again, the presence or absence of grouping phenomena was invoked in explanation.

The findings of this study uniquely demonstrate how membership of an accessible co-national group may influence the process and experience of an international student's academic, linguistic and socio-cultural adjustment. However, in common with several other studies, the research is based upon student self-reports and does not include assessments of the English language proficiency of the comparable groups of students improved over time. Conversely, studies that set out to assess English language progress employ appropriate objective measures but do not access students' personal attitudes or judgments of language progress (Andrade, 2006). Therefore, there is a place for studies that attempt to correlate attitudes and judgments with assessed outcomes over time.

In summary, the research indicates that English language constitutes the main problem faced by NNES international students. Borderline language skills increase the burden of effort the student must expend to achieve academic aims, and limited language abilities impede socio-cultural integration, further compromising language development. Perhaps, more unexpectedly, the research cautions against assuming that progress in the various areas, linguistic, academic and socio-cultural, is necessarily linear. Similarly, English language skills do not all progress simultaneously. This conclusion is, in part, due to the varying assumptions underlying different methodological approaches since survey research seeks the aggregate attitudes of large student samples while qualitative research focuses upon individual examples within a particular setting. It is also possible that the heterogeneity found in some studies is influenced by significant features of the context which have not been recorded. The consequences of the time constraint of the single-year UK Masters course when compared to a three-year undergraduate program is a case in point, as is the influence of the cohort effect in Zhou and Todman's research (2009).

While it is plausible to assume that development in one area may enhance another, there is remarkably little evidence to support this view. Few studies have examined potential interactions between curricular and extra-curricular language demands, usage and progress, and only a minority of the reported research has included any assessments of students' language skills. There is, therefore, a place for case study research to explore NNES students' experience over the duration of a degree, paying attention to significant aspects of academic and socio-cultural context in combination with language testing.

3 CONTEXT FOR STUDY

The institutional setting for the study is Cranfield University in Bedfordshire, a wholly postgraduate UK university, with strengths in engineering and aerospace. Cranfield's focus on applied knowledge and close links with industrial leaders such as Airbus, Boeing and Rolls Royce marks it out as unusual among its peers. Instead of traditional academic disciplines, the Cranfield campus is organised into four schools; the Schools of Management (SOM), Applied Sciences (SAS), Engineering (SOE) and Health (CH), although multi-disciplinarity is common, for instance, engineers are found in SAS and psychologists in SOE. The institution prides itself on the practicality of its graduates, claiming that 93% of graduates are engaged in relevant work or research within six months of graduation. The rural location of the campus is rare for a UK HEI and renders the full-time students largely reliant upon themselves for social and extra-curricular activities. The university has always possessed strong links with the aerospace industry and is located on an old air base.

Cranfield is a relatively small, specialised HEI and presents a contrast to the more typical, urban UK universities. In 2009/10, there were around 2700 registered postgraduate Masters students and 700 doctoral students. Of these, around 1600 students were studying on the Cranfield campus. There is a bias towards men among staff and students associated with the disciplinary specialisms. In the academic year 2008/9, 31% of taught postgraduate students were studying in the School of Engineering. (This is the last year for which statistics are currently available but there is no reason to believe the proportions have altered since then.) While the numbers of overseas students coming to the UK has increased in recent years, the international character of the Cranfield student body has been established for some time, such that in 2008 it was ranked second in the world for its international student community in the Times Higher Education (THE) World University Rankings. In 2009/10, there were over 105 nationalities represented on campus. The breakdown in terms of student nationality on the Cranfield campus was 45% UK, 20% non UK EU and 35% from elsewhere in the world. Compared to the HESA figures for the sector, the Cranfield student population has fewer UK students and proportionately more non-UK EU students among the overseas group. These descriptive institutional statistics operate at the institutional level and fail to capture the range of national diversity evident in classes between different Masters programs.

SOE offers around 20 Masters programs each year but some of these sub-divide into several options, for instance the Master of Science in Thermal Power has four options in aerospace propulsion, gas turbine technology, power propulsion and the environment, and rotating machinery engineering and management. The majority of the programs are classified as taught courses but there are a small number of Masters by research programs in which the student completes a one-year research project. One of these is the Masters by Research in Aerospace Vehicle Design (AVD).

The design of one-year taught course Masters programs at Cranfield is remarkably similar across subjects and schools. Courses are modular in structure, with module length varying between one and four weeks. Typically, in the first term, teaching takes place largely through the medium of lectures and practicals; in the second term, students undertake a group project, and in the final term, they embark on an individual research project and thesis. Assessment takes place after each module and examinations are scheduled in January and April. Students have only short leave breaks at Christmas and Easter and the customary summer holiday period is spent on individual research projects. High value is attached to the group project because of the opportunities it affords for work outside academia through team working and/or the relevance of the project to a particular company or industry. Even the MSc by Research in Aerospace Vehicle Design includes a group design project, in addition to the individual research project. This is particularly relevant in the field of aerospace which is itself a multinational area of practice. Class size in SOE varies between 10 and 80 students, and this small class size is reflected in Cranfield being ranked first in the UK and 11th in the world for the staff-student ratio in the Times Higher Education World University Rankings in 2007.

For the past three years, the Aviation Industries of China (AVIC) has sponsored approximately 60 students each year from throughout China to study two Masters programs in SOE at Cranfield. Half the students take the taught MSc in Thermal Power and the remainder, the MSc by Research in Aerospace Vehicle Design. However, the courses do not run simultaneously with the majority of MSc programs which commence in October. The AVIC students arrive in the UK in February to take a three-week course in English language and then begin the MSc programs in March. Apart from the timing, the programs conform to the description above. There is one other significant difference between the two programs – the nationality composition of the two MSc cohorts. In 2010, the AVD cohort was entirely composed of AVIC students but the MSc in Thermal Power cohort included 15 other international students. There are no UK students on either MSc program so they conform to the description of student profiles in the HEPI report on UK postgraduate education (House, 2010). Following the completion of the programs, the AVIC students return to work for AVIC in China.

4 AIMS OF THE STUDY

This study builds upon prior research to examine the socio-cultural and academic English language demands placed upon a cohort of Chinese postgraduate students who are taking two Masters engineering courses, their responses to those demands and their progress in English language proficiency over the duration of the course. Half the students are registered on the taught MSc in Thermal Power and the remainder on the MSc by Research in Aerospace Vehicle Design (AVD). All students are sponsored by the Aviation Industries of China (AVIC).

The subsidiary research objectives are as follows.

1. To identify, and compare, the English language demands of different postgraduate engineering curricula (MSc by Research and taught MSc) based in the same UK HEI.
2. To identify the students' perceptions of, and their responses to, these educational demands.
3. To evaluate the linguistic progress of the NNES students for the duration of the study (10 months).
4. To relate study hours and workload to the linguistic progress of the NNES students for the duration of the study (10 months).
5. To identify the socio-cultural opportunities, facilitators and barriers to NNES students' English language development.
6. In the light of above, to evaluate the admissions requirements for English language test scores and the need for English language provision both pre-sessional and in-sessional.

5 METHODOLOGY

5.1 Research design

A case study research approach has been selected as the most appropriate research design (Yin, 2003; Maxwell, 2004) for three reasons:

- respect for significant features of the academic and socio-cultural contexts which require recording and relating to the study findings
- the exploratory examination of contemporary and, potentially, unpredictable phenomena
- an inductive rather than a deterministic, approach towards research design which allows emerging findings to be incorporated into subsequent lines of enquiry and data collection.

The case focus is defined as the English language progress of Chinese postgraduate Masters engineering students within the setting of a UK HEI. A range of qualitative and quantitative methods has been chosen to seek wide-ranging evidence of English language development that respects the learning process and reflects the multiple influences upon learning. The use of multiple data sources is also deliberately intended to facilitate triangulation to give greater robustness to the conclusions of the study. In developing the research enquiry, a set of inter-related research studies, each linked to the subsidiary objectives of the study has been designed that will be described in detail in the following and later sections of the report.

5.2 Methods of data collection

The data collection methods include direct observation, semi-structured interviews, a documentary analysis, a questionnaire and measures of English language skills. This strategy is designed to provide for methodological triangulation by complementing the strengths and weaknesses of different data collection methods, for instance, the use of observation methods and to corroborate self-report data. The range of data collection methods and the research objective each is designed to address is shown in Table 1.

5.2.1 Research objective 1: Academic English language demands

The main data sources for this objective are institutional and curriculum documents relating to the taught MSc in Thermal Power and the MSc by Research in AVD which were used to identify and compare the linguistic demands arising within each program. Additional data sources came from student interviews and direct observations of academic sessions.

5.2.2 Research objective 2: Students' perceptions of English language demands

Students' perceptions of the linguistic demands of the two programs and their responses to them were sought principally in data from student interviews but also in student diaries and in field notes taken from direct observations of sessions during the group design project (GDP).

	Research Objective 1	Research Objective 2	Research Objective 3	Research Objective 4	Research Objective 5
Data collection method					
Documentary analysis	X				
IELTS and 'in house' testing			X		
Student interviews	X	X	X		X
Student diaries		X		X	X
Direct observations	X	X			X
Supervisors' questionnaire			X		

Table 1: Research objectives and related data collection methods

5.2.3 Research objective 3: Evaluation of students' progress in English language

Three data sources were utilised in evaluating students' English language progress: (1) standardised measures of English language proficiency which included the four language skills; (2) students' self-reports in interview data; and (2) thesis supervisors' judgments accessed through a questionnaire towards the end of the program.

5.2.4 Research objective 4: Relationship between students' work effort and progress in English language

A simple, electronic student diary was devised to capture the time students were spending on academic tasks that required English language and on extra-curricular English usage. The diary initially included the four main language skills.

5.2.5 Research objective 5: Socio-cultural facilitators and barriers

Data from student interviews, diaries and direct observations were used to address this objective.

5.2.6 Research objective 6: Admissions requirements and in-session English language support

All data sources contribute to this objective and to the overall aim of the research.

5.3 Ethical issues and consent

The nature and purpose of the research project had already been discussed with the two course directors who had given their consent when the original research proposal was drafted. Other staff members, for instance, the directors of the group design projects, were approached face-to-face at teaching sessions with a summary of the purpose of the research and a request to be allowed to observe student presentations. No requests were refused.

An introductory email was drafted and sent to all AVIC students describing the research project and its purposes in early April (see Appendix 1). The email mentioned that we would be conducting interviews and observations of some teaching sessions and guaranteeing confidentiality to all participants. It also stated that there was no intention to grade their English language proficiency or that the research would contribute to course assessment. Subsequently, when selected for an interview, we emailed the student directly to confirm consent. Participants' confidentiality, both staff and student, will be respected in any future reports, presentations or publications.

The individual studies based upon the different data collection methods are described in the following Sections 6 to 11.

6 ANALYSIS OF COURSE DOCUMENTS

6.1 Method

The review of course documents was designed to specifically address the first research objective to identify, and compare, the English language demands of the research and taught engineering MSc programs. Interview and observational data also contribute towards the same objective (see Sections 7 and 9). It was anticipated that course documents would provide an institutional perspective on, and organisational framework for, the two programs which would be elaborated upon by the later datasets.

At the start of the program, the researchers met with the course administrators, who were Chinese speakers and had previous experience of earlier AVIC cohorts. The objective of the meeting was primarily to discuss the research project and gain their consent for gathering data. The meeting was very constructive, resulting in further information about AVIC, the sponsoring company, and the background to the collaboration. As a result of this meeting, the researchers were invited to attend the formal AVIC Program Opening Ceremony held in SOE at Cranfield, where representatives of AVIC and the Chinese Embassy in London launched the third student cohort under the joint AVIC–Cranfield initiative with several speeches and an attendant photographer to record the event. The administrators subsequently became essential to the project, providing not only documents and information about time tabling, but also advising about how to approach students for interviews.

In examining the documents for the two Masters programs, the MSc by Research AVD (MScR) and the taught MSc in Thermal Power (MScT), a variety of curricular documents were reviewed. The documents included course manuals, outline plans and more detailed timetables, student names, demographics and photos. These were later supplemented by detailed information about the group design project (GDP) which features in both courses, including the objectives and tasks for each

group, lists of group members, course outlines and timetables for formal sessions and, for the taught MSc, an introductory PowerPoint presentation to the project. A more detailed description of the implementation of the GDPs can be found in Section 9: Direct observations of teaching sessions.

6.2 Findings

The preliminary findings from the program review demonstrated that the two programs provide distinctive student experiences with different educational English language demands. Only a summary of the key similarities and differences between the two programs is included in this section. First, the similarities: both courses run concurrently between March 2010 and February 2011 which is out of step with the prevailing academic calendar at the HEI. When the AVIC students arrive, the great majority of full-time Masters students on campus are already six months into their studies and about to sit examinations prior to beginning their individual research projects. Students on both courses participate in a group design project (GDP), again running concurrently from late March to the end of August and broadly similar in terms of delivery. In both programs, students complete their studies with the writing of a research thesis between October 2010 and January 2011. A student's individual work in the GDP is included in the thesis where it may develop into the core topic. There are 29 AVIC students on the research and 28 on the MScT program.

Here, though, the similarities end for there are major differences between the two courses in the provision of lectures and assessments, which have a considerable impact on the students' time until September 2010. For the first five months of the MScT, students' time is almost exclusively occupied with a 9am to 5pm lecture program, five days a week, so that there is little time available for other commitments, such as English language tuition. MScT students complete regular assignments, approximately once a month, and sit examinations at the end of July and September, which form part of summative assessment. The MScT cohort includes 15 international students, a minority of whom are native English speakers and whose attendance at the GDP is voluntary. Students are allocated to four mixed nationality task groups for the GDP each designing a different type of engine: helicopter, aero-derivative industrial, 3-shaft and turbo-prop. While the GDP on the MScT course is not summatively assessed, the GDP Report, to which all students must contribute, is sent to AVIC for review. Following completion of the GDP, all students are engaged in individual research projects, the organisation, delivery and assessment of which are similar on taught and research MSc programs.

By comparison, the early timetables of their MScR colleagues are relatively empty apart from occasional short courses (one to two days) of lectures to which individual students are assigned during the program. MScR students do not complete any assessments until the completion of the GDP report in August nor do they sit examinations in July and August. The GDP of the MScR concentrates upon aerospace vehicle design, tasking the entire cohort of 29 AVIC students to design a single aircraft. Based upon their expertise, the research students are assigned to three sub-groups dealing with structures and aerodynamics design, systems design, and avionics systems design. The GDP is also historical as each successive cohort of AVIC MScR students builds upon the work of their predecessors. The entire cohort is composed of AVIC Chinese-speaking students but staff members encourage them to interact and engage with the 2009/10 cohort of students on the MSc in Aerospace Vehicle Design, particularly where there are shared topics and expertise among students. The latter course includes a GDP delivered along similar lines but which is completed by June 2010 and utilises a larger and multinational student cohort.

Based on the course documents, it is reasonable to hypothesise that the two groups of students experience quite different English language usage and demands during the first half of their Masters programs. This is not only different quantitatively but varies according to the particular language skill.

The MScT students have ample opportunity to practice listening to English during the intensive lecture schedule. They also have some initial opportunities to write assignments although the amount of text involved will be dependent on the nature of the assignment. The GDP provides similar challenges for both groups in terms of speaking English at group presentations but the demands upon the MScT students' opportunities are likely to be greater because of the mixing of nationals within the task groups. It is difficult to predict the demands and opportunities for reading English for the MScT cohort. On the one hand, they have lecture hand-outs, PowerPoint presentations and references to consume, but, on the other hand, less time for actual reading. Similarly, it is possible that the scope of the MScT lecture program may limit students' opportunities to listen and speak English in extra-curricular and social settings. Correspondingly, by virtue of the lighter schedule, the research students will have more initial opportunities for academic reading and potentially more time to listen and speak English outside the MScR program. However, the program demands for English listening and speaking appear less than for their taught peers. Since all students complete a written research thesis, the challenges of writing academic English will be similar for all AVIC students in the second half of the program. The document review, therefore, suggests that the research course provides fewer opportunities to use and practice English language in the first half of the program.

7 IELTS AND TESTS OF ENGLISH LANGUAGE

7.1 Method

The purpose of this part of the case study was to assess the AVIC students' progress in English language skills over the 10-month duration of the research under research objective 3. As far as possible, tests were selected that allowed a comparison over time and utilised contextually appropriate testing materials. In addressing the third research objective, the test results were combined with three other sources of evidence: the students' self-assessments of English language progress; the judgments of supervisors; and, to a more limited extent, with observational GDP data.

The IELTS entry scores and sub-scores of the MScR and MScT students provided an assessment of students' English language skills at entry to the course and are shown in Tables 2 and 3. Overall scores varied between Bands 6 and 7.5 but the sub-score range was much greater, between Bands 4.5 and 8.5. The majority (42) of students achieved an Overall entry score of 6.0, which was 0.5 below the institutional entry requirement. Students had the highest sub-scores in Reading where 11 students scored 6.0 and none below this level. The next highest sub-score was in Listening, with 20 students scoring 6.0 or less. Writing and Speaking were the weakest language skills on the basis of IELTS sub-scores. Three students scored 4.5, nine scored 5.0 and 24 scored 5.5 – therefore, over half of the students scored less than 6.0 for Writing. Speaking sub-scores were lower still with two thirds of the group scoring 5.5 or below; four students scored 4.5, 18 scored 5.0 and 16 scored 5.5.

The scores of the MScR students were marginally better than the MScT student group; nine MScR students scored 6.5 or above compared with six MScT students and there were fewer MScR students with sub-scores of 4.5. Interestingly, some students with low sub-scores of 4.5 or 5 in either Speaking or Writing had comparatively high scores of 7 or above in Reading or Listening.

Each of the four basic language skills was assessed separately and detailed descriptions of each assessment follow. The assessments were conducted by two raters – British Council trained IELTS examiners who also delivered in-session courses in academic English to the AVIC students. The first of these focused on oral, presentational skills and took place in April and May 2010. The course was offered to 10 students with the lowest sub-scores in Speaking from each program.

A second course in academic writing was offered to students in October and November 2010. Students were again selected for this course but early attendance was sporadic due to pressure from other program commitments, so the course was opened up to all AVIC students. Possibly, because of their more flexible timetables, MScR students were more consistent in their attendance. The reading and listening tests were conducted during the teaching sessions and writing was assessed upon samples of writing students produced as part of the academic writing course.

Student code	IELTS	Listening	Reading	Writing	Speaking
R1	7.5	8.5	8.5	6	6
R2	7	8	6.5	6.5	6
R3	7	7.5	8	6	6
R4	6.5	7	7	6	5.5
R5	6.5	6	7.5	6	6
R6	6.5	7	6.5	6	6
R7	6	5.5	6	5.5	6
R8	6	7	7	5.5	4.5
R9	6	6	6.5	6	5.5
R10	6	6	7	6	5
R11	6	6	6	5.5	6
R12	6	7.5	6.5	5.5	5
R13	6	6.5	6.5	5.5	5
R14	6	6	7	5.5	5.5
R15	6	7.5	6.5	5	5
R16	6	6.5	6.5	5.5	5
R17	6	6.5	6.5	5.5	5
R18	6	6	6	6	6
R19	6	7	6	5.5	6
R20	6	5.5	7	5.5	5
R21	6	6.5	6.5	5.5	6
R22	6	6	7.5	5	5.5
R23	6	6	7	6	4.5
R24	6	6.5	6.5	5	5
R25	6	6.5	5.5	6	6
R26	6	6	7	5.5	5.5
R27	6	6	6.5	5	5.5
R28	6	6.5	7	5	5
R29	6	6	6.5	6	5

Table 2: The entry IELTS scores and sub-scores of the MScR students

Student code	IELTS	Listening	Reading	Writing	Speaking
T1	7.5	8.5	8	6	7
T2	7	7	7	6.5	7
T3	7	7.5	7.5	7	6
T4	6.5	6.5	7	7	5.5
T5	6.5	6.5	7.5	6	5
T6	6.5	7.5	6.5	4.5	6.5
T7	6.5	7	6.5	5.5	6
T8	6.5	6.5	6	7	5.5
T9	6.5	7	7	6	6
T10	6	7	6	5	5.5
T11	6	5.5	7	5.5	6
T12	6	7.5	6.5	5.5	5
T13	6	6.5	6	5.5	5.5
T14	6	5.5	7	5	5.5
T15	6	6	6	6	5.5
T16	6	6.5	7.5	5	5.5
T17	6	6.5	6.5	6	5
T18	6	6.5	6	6	4.5
T19	6	6.5	6.5	6	5.5
T20	6	5.5	7.5	5.5	5
T21	6	6.5	7.5	5.5	4.5
T22	6	6.5	6.5	5.5	5
T23	6	5.5	7.5	5.5	5
T24	6	6.5	6	5.5	5.5
T25	6	6	6.5	5.5	6
T26	6	6	6.5	5.5	5
T27	6	7	6.5	5.5	5
T28	6	6.5	6	5	5.5

Table 3: The entry IELTS scores and sub-scores of the MScT students

7.1.1 Reading

Reading was assessed using the pre- and post-tests from the Penguin Reader, Level 6 (Penguin Reader, 2011). The Penguin tests are routinely used in the Cranfield English language centre for assessment purposes and have proven to be an economical and reliable measurement of language proficiency in the areas of reading, grammar and vocabulary. Another advantage of the tests is the ability to relate the Penguin scores to IELTS scores. The Penguin introduction that accompanies the tests states that a score of more than 18 (the maximum score is 30) on the Level 6 tests would place students inside the Penguin 6 reading category. It is suggested that Penguin Level 6 would be appropriate for students with an IELTS score of 6.5/7. The Penguin Reader Level test 6A was administered as the pre-test a month after students' arrival in the UK at the start of the Masters programs. The Penguin Reader Level test 6B was used as the post-test and administered seven months later, ie eight months after their arrival in the UK. Each test consisted of 30 multiple-choice questions and both tests are at the same level. Seven MScT and ten MScR students took the test.

7.1.2 Writing

An initial attempt to assess the introduction sections from students' GDP reports using the CARS model for writing academic introductions (Swales and Feak, 1994) was unsuccessful. Firstly, the brevity of the introductions meant there was an insufficient amount of text to analyse (many of the introductions were less than two or three sentences). And secondly, and most importantly, as the reports were the result of a group project, some students had submitted identical reports. Student writing was, therefore, assessed using samples produced as part of the academic writing classes which focused on academic writing skills particularly structure and accuracy, and on how to write the various components of a MSc thesis. Writing topics included food culture, space research, alternative energy sources, education and global warming. There were also opportunities for students to write on topics in their own field of engineering. Students were given writing tasks to complete in class and as homework, and it was a selection of these completed tasks that were used in assessing students' writing proficiency. A single script was deemed insufficient for assessment purposes as they were relatively brief pieces of work, therefore, where available two or three scripts were used.

Samples of writing were examined over two weeks towards the end of the classes in November 2010. Ten students from each group were selected based on their attendance – as classes were not compulsory, attendance was often erratic with few individual students attending all six sessions and only 10 students from each group attending more than three sessions in total. The scripts were analysed for coherence and cohesion, academic vocabulary, and grammatical accuracy; areas that lecturers in the School of Engineering routinely cite by lecturers as being problematic for NNEs students. As both raters had IELTS examining experience, the IELTS Task 2 band descriptors (IELTS 2006) were considered an appropriate assessment tool. The tasks that students were given involved writing texts that used typical features of academic writing including among others: definitions; descriptions; comparing and contrasting, and paraphrasing and summarising. The students were required to write approximately 200–300 words for each task. In general, the students selected wrote two handwritten scripts in class and a third script was word processed outside of class.

7.1.3 Speaking

Where available, the interview sound files were used as data to assess students' speaking abilities. Twelve students were interviewed between April and early October 2010 and five of the earlier interviewees were interviewed a second time (see Table 6 for details). Only the data from the assessments on the twice-interviewed students is presented here. Students were assessed on the range and accuracy of their grammar, the range and appropriacy of their vocabulary, the intonation and stress of their pronunciation and their fluency, as judged by students' responding, coherence and hesitation. The assessment scale ranged from 1 (poor) to 5 (very good).

7.1.4 Listening

Although students took a commercially available practice IELTS Listening Test, there was a technical issue which compromised sound quality and affected the test results. For this reason, the results are excluded from this final report.

7.2 Findings

The results of the reading and writing tests for MScR and MScT students are shown in Tables 4 and 5 respectively. The results of the speaking assessments are shown separately, for reasons of clarity, in Table 6.

7.2.1 Reading test

For the reading test, the majority (12/17) of students from both groups achieved a higher score in the post-test, with all but one student finishing on or above the target figure of 18, the figure suggested by Penguin as corresponding to an IELTS score of 6.5/7. Of the 17 students who took both tests, three students scored lower and two students had the same result in the second test.

Student code	IELTS	Reading IELTS	Pre-test	Post-test	Writing IELTS	Writing assessment
R3	7	8	19	21	6	
R5	6.5	7.5			6	6.5
R6	6.5	6.5	16	22	6	
R8	6	7			5.5	6
R10	6	7	21	18	6	6
R12	6	6.5	23	26	5.5	6.5
R13	6	6.5	18	18	5.5	5.5
R16	6	6.5	24	27	5.5	6
R18	6	6	15	21	6	
R19	6	6	27	28	5.5	6
R20	6	7			5.5	5.5
R27	6	6.5	16	21	5	
R28	6	7			5	6
R29	6	6.5	20	22	6	6

Reading IELTS = Reading sub-scores; Writing IELTS = Writing sub-scores

Pre-test = Penguin Reader Level test 6A; Post-test = Penguin Reader Level test 6B

Writing assessments in IELTS equivalents

Table 4: The Reading and Writing assessments of the MScR students

7.2.2 Writing assessment

Analysis of the scripts generally showed progress when compared to the students' IELTS Writing sub-scores on entry to Cranfield. Most students showed an increase of 0.5 on the IELTS Writing band scale. There was negligible overall difference in gains between the research and taught students.

Analytical summaries of the key writing criteria: coherence and cohesion, academic vocabulary and grammatical accuracy are described below.

Coherence and cohesion

Students' use of paragraphing was sometimes illogical, possibly due to different cultural writing norms in Chinese. There was a tendency to include more than one topic within a single paragraph. Where this was the case, coherence was improved in a few examples by accurate and appropriate use of cohesive markers. Students generally scored in Band 5.5/6.

Academic vocabulary

On the handwritten texts, spelling errors were noticeable in most scripts where students had used more technical vocabulary, however, they rarely impeded understanding. There were fewer instances of spelling errors on the word-processed scripts, probably due to the use of a spell-checking function. Generally there was an adequate range of vocabulary with most students falling into Band 6/7 for lexical resource.

Grammatical accuracy

Generally a good mix of simple and complex structures was shown by nearly all students and placed them in Band 6. Only one or two students had limited control of structures, which put them in Band 5.

Student code	IELTS	Reading IELTS	Pre-test	Post-test	Writing IELTS	Writing assessment
T4	6.5	7	26	25	7	7
T5	6.5	7.5			6	6
T7	6.5	6.5			5.5	6
T13	6	6	24	24	5.5	6
T16	6	7.5	21	22	5	
T18	6	6			6	6.5
T20	6	7.5			5.5	6
T21	6	7.5			5.5	6
T24	6	6	19	17	5.5	
T25	6	6.5	18	21	5.5	6
T26	6	6	18	22	5.5	6.5
T27	6	6.5	17	22	5.5	6

Reading IELTS = Reading sub-scores; Writing IELTS = Writing sub-scores

Pre-test = Penguin Reader Level test 6A; Post-test = Penguin Reader Level test 6B

Writing assessments in IELTS equivalents

Table 5: The Reading and Writing assessments of the MScT students

7.2.3 Speaking

The results from the assessments of the sound files of the interviews who were interviewed twice are shown in Table 6. Despite students' perceptions indicating little improvement in their speaking skills, it is interesting to note that all five students who had two interviews appeared to make some progress in their speaking skills. Three students made a gain of 1 in one area but two students, R13 and 20 make similar gains in two areas. No students made gains in vocabulary and only one student made a gain in pronunciation. The main areas of improvement were fluency and grammar where three students make improvements. The sample is biased towards MScR students.

Student code	Interview date	Grammar score	Vocabulary score	Pronunciation score	Fluency score
T12	14.4.10	3	4	4	4
	1.11.10	4	4	4	4
R11	21.4.10	3	4	3	3
	21.10.10	3	4	3	4
R13	26.4.10	3	4	2	3
	21.10.10	4	4	3	3
R5	5.5.10	5	5	4	4
	21.10.10	5	5	4	5
R20	11.5.10	3	4	3	3
	21.10.10	4	4	3	4

Table 6: Analysis of students' speaking abilities based on interview sound files

The results of the tests and assessments of AVIC students' skills conducted after five to six months on the Masters programs were generally positive with the majority of students showing evidence of 0.5 increases on their IELTS entry sub-scores in Reading and Writing. The speaking abilities of a smaller sample of students (five) were assessed and also showed increases. These positive results show improvements in AVIC students' English language proficiency but caution is needed due to the small samples of students who participated in the assessments. There is also the possibility of the samples containing more conscientious students in the samples for the reading and writing assessments. However, the evidence from other sources supports the increases in students' skills (see Sections 8.2.2.2. and 9.2.2).

8 STUDENT INTERVIEWS

8.1 Method

The rationale for the inclusion of individual interviews was primarily to access students' experience, attitudes and judgments between March and December 2010 and, in particular, to capture their responses to the changing English language demands and usage during that time (research objectives 1 and 2). Although questionnaires were considered as an alternative, semi-structured interviews were preferred for the opportunity to probe around topics of interest and emergent issues, despite the risk that some students' speaking skills might be limited. This decision was endorsed by the course administrators, who thought that students would value an opportunity to practice speaking English. The potential to use the digitally stored sound files of the interviews as data to evaluate the students' speaking abilities was also considered an attraction (research objective 3). Interview data was the principal source of evidence for research objective 5 – the identification of socio-cultural opportunities, facilitators and barriers to students' English language development.

8.1.1 Sampling

We originally decided to interview 26 of the AVIC students, around half of the group, for the case study. Initially, sampling was broadly representative of the group with a mix of genders, programs and varied English language abilities, as assessed by IELTS scores. After two months, this strategy was altered as it was proving almost impossible to arrange interview dates for the MScT students due to their full lecture program, and, consequently, time and data were being lost from the study. As a result, stricter sampling criteria were introduced which focused on students most likely to be at risk of language difficulties. In practice, these were the students who were taking an English language course

in Presentation Skills. The timetable problem was overcome by offering to interview the taught course students immediately following the weekly English language class. In practice, Chris Binch (CB) interviewed MScT students (7) following the class of which he was the tutor and Gaynor Lloyd-Jones (GLJ) interviewed the remainder. Apart from the initial gap for the MScT students, interviews were conducted steadily between 14 April 2010 and 6 October 2010. Once it became clear that the data were consistent and no new issues were emerging, the sampling criteria were broadened to include two students from the MScT program whose IELTS scores did not qualify them for the Presentation class but whose standard of presentations at GDP sessions was incongruent with their test scores (see Section 9.2: Observation Findings). Details of the interviews and interviewees are shown in Table 7.

8.1.2 Interview schedule

An interview schedule (See Appendix 2) was constructed which explored students' experiences of learning and using English in China, the main challenges of studying in English and the opportunities to use English in academic and extra-curricular contexts. In particular, questions about the students' residential situations and contact with English-speaking students outside the programs were included to gain a picture of the students' social circumstances and to discover what opportunities presented themselves to students beyond academic settings. In the later interviews, students were asked whether they thought their English had improved since arriving in the UK. Where appropriate, questions about abilities were probed with requests for concrete examples. As far as possible, straightforward, direct language was employed and long questions avoided. Following difficulties encountered with the implementation of the diary study (See Section 10: Diary study), questions about the time spent using English in academic and extra-curricular settings were added to later interviews.

8.1.3 Pilot interview

By chance, a taught course student who attended the English language classes replied enthusiastically to the introductory email, offering to be interviewed. GLJ interviewed him on 14 April 2010 and the interview was audio-recorded and transcribed verbatim. The pilot interview lasted 30 minutes, which was the original estimation of its duration. Apart from the first question intended as an ice-breaker about the student's preference for either the research or taught course, the schedule worked well and prompted useful and relevant data. The first question caused difficulty because it presumed that the students were able to select the course when, in fact, the responsibility lay entirely with their employing company, AVIC.

Students were approached individually and invited for interview at a mutually convenient time. All students accepted, apart from one research student who did not reply to two email invitations. All interviews were audio-recorded and transcribed, except on one occasion when the recording equipment failed. Notes were made during and after this interview. Sound files were saved for 12 students.

An analytic guide was constructed to enable both researchers to analyse the data in a consistent way (Appendix 3). The framework was structured as sets of questions relating the data to the interview schedule and research objectives. In general, the data were searched for commonalities and differences between interviewees, especially for comparisons between students on the two programs and for changes over time. GLJ undertook the majority of the textual analysis, CB undertook the analysis of the sound data.

8.1.4 Revision to research plan

In response to review feedback on the Interim Research Report, which was submitted in July 2010, the original plan was amended in order to track individual students' sense of progress. Instead of increasing the sample of students interviewed on a single occasion, 10 of the students who had been interviewed between April and June 2010 were invited for a second interview in September and

October (see Table 7). Five students each from the two programs were interviewed between 20 October 2010 and 1 November 2010. A revised interview schedule was drafted for the second interviews, which focused on perceived improvement to English language skills, current usage on the program and in extra-curricular settings (see Appendix 4). Students were also invited to advise how their successors on the course might improve their English.

Student code	IELTS overall score	IELTS Speaking sub-score	Attended English class	Date of 1 st interview	Date of 2 nd interview	Interviewer	Sound file retained
T12	6	5	Yes	14.4.10	1.11.10	GLJ	1 st and 2 nd
R11	6	6	No	21.4.10	21.10.10	GLJ	1 st and 2 nd
R13	6	5	Yes	26.4.10	21.10.10	GLJ	1 st and 2 nd
R5	6.5	6	No	5.5.10	21.10.10	GLJ	1 st and 2 nd
R20	6	5	Yes	11.5.10	21.10.10	GLJ	1 st and 2 nd
R16	6	5	Yes	20.5.10	20.10.10	CB/GLJ	2 nd
T18	6	4.5	Yes	28.5.10	1.11.10	CB/GLJ	2 nd
T27	6	5	Yes	28.5.10	21.10.10	CB/GLJ	2 nd
T5	6	5	Yes	28.5.10	21.10.10	CB/GLJ	2 nd
T26	6	5	Yes	8.6.10	Declined 2 nd interview	CB	
T23	6	5	Yes	10.6.10	9.11.10	CB/GLJ	2 nd
T20	6	5	Yes	10.6.10		CB	
R10	6	5	Yes	22.6.10		GLJ	1 st
R12	6	5	Yes	1.7.10		GLJ	
R15	6	5	Yes	14.7.10		GLJ	1 st
R17	6	5	Yes	13.9.10		GLJ	1 st
T6	6.5	6.5	No	20.9.10		GLJ	1 st
R24	6	5	Yes	20.9.10		GLJ	1 st
T21	6	4.5	Yes	6.10.10		GLJ	1 st
T2	7	7	No	6.10.10		GLJ	1 st

Student codes: T = Taught program student, R = Research program student

GLJ – Gaynor Lloyd-Jones, CB – Chris Binch

Table 7: Details of student interviews and students' IELTS scores

The interview schedule took 15 minutes to complete and all interviews were audio-recorded and transcribed as before. Five to six months elapsed between the first and second interviews. Only one student, T26, declined to be interviewed because of time pressures to complete her research thesis. All interviews were conducted by GLJ and all sound files were retained.

8.2 Findings

The findings are described under four headings: studying and using English in China; the demands and challenges of using English in academic contexts; the use of English in extra-curricular contexts; and the evaluation of interviewees' spoken English skills.

8.2.1 Studying and using English in China

The description of English language study in China was consistent among all interviewees. English study begins aged 10–14 years and continues until graduation from university. English is taught through the medium of Chinese with an emphasis upon reading, vocabulary and some writing. Audio-recordings were occasionally mentioned as listening practice but spoken practice was rare. Teaching continued in the same vein during university, and graduation at bachelor or Masters level is dependent upon passing the College English Test (CET), Levels 4 and 6, respectively. However, the spoken section of the CET is not compulsory for graduation. The majority of interviewees were critical of the teaching methods which they regarded as assessment orientated and excluded speaking skills (see Extract 1).

Extract 1

“Give us books and the teachers follow the books every day to read it and let us to recite it, just words. Yes it's, well now, I think that's not a good way. We never had chance to talk with, in English. Just learn the words and reading, maybe most Chinese people have the same problem. We're good at reading and at a lot of vocabulary (*data omitted*) but they cannot talk very well.”

T6, 20.9.10

Students were required to reach an overall IELTS score of Band 6 to be accepted for MSc study. Seven interviewees reported taking a full-time, three-month English language course, sponsored by AVIC before sitting the IELTS Test. Again, delivery of the course was described as teaching to ‘pass the test’.

Some universities organise informal ‘English corners’ that are open to all students and provide opportunities to practice listening and speaking skills. A location and time is designated an ‘English corner’ and the sessions are led by English speakers, although not necessarily native speakers. As well as this example, there were suggestions that urban dwellers had more opportunities to use English through contact with foreigners than their rural counterparts for whom such opportunities were non-existent. Four interviewees mentioned listening to the radio, either the BBC or Voice of America and watching movies in English on the internet to help listening and pronunciation, but these opportunities were not accessible to all interviewees.

English tuition apart, the opportunities to use English were almost entirely confined to work and were very variable among the interviewees. One student said she had not spoken in English for seven years before coming to the UK. Yet it was clear that English language proficiency was considered important for the development of China as a nation on the world stage as well as individually for an interviewee's career path (see Extracts 2 and 3)

Extract 2

“I think it's very important speaking well especially *for studies*. (*data omitted*) I found there is little chance for me to speak English but now the world become smaller and our company provide many opportunities for us to cooperate with foreigners. So it's become more and more important for us to speak very well.”

R10, 22.6.10

Extract 3

“Yeah, I'm a senior designer in China because our company want... want to train all of these guys, the engineers, in their thinking in the way of western countries.”

R16, 20.5.10

Almost all interviewees read English at work but with variable frequency, mostly technological reports and manuals and, occasionally, academic papers. There is little need to speak in English as non-Chinese speaking visitors are accompanied by translators. One student with an IELTS Speaking sub-score of 6.5 reported speaking English on a weekly basis in conference calls and, occasionally, presenting to new clients but he was unique among the interviewees. Opportunities to write in English were also scarce, although six students had either written abstracts or papers, three of whom were translating papers. Two other students were using English in written communication – either email or letters – with clients and suppliers. Other than a relationship between proficiency in specific language skills and work roles, there appeared to be no reason why some interviewees were more likely to use English than the others.

Interviewees considered that their study of the English language in China had equipped them to be able to read English in their chosen field of engineering but they felt rather less proficient in the other skills, particularly speaking. They were keen to improve their skills, not least for career advancement, but few perceived that opportunities to use English would increase on return to China.

8.2.2 Using English in academic contexts

8.2.2.1 The demands

The data showed that MScR and MScT students experienced different English language demands and usage until the completion of examinations at the end of September. In the first six months, the research students' main opportunities to listen to, and speak, English occurred in the group design project (GDP). One afternoon per week was allotted to formal presentations of GDP 'work in progress' between April and the end of August (23 meetings). All students and several tutors attended these meetings. Students were very positive towards the GDP and the associated opportunities to practice English (see Extract 4). They described memorising presentations and practising them verbatim before the formal meeting. Students were generally able to answer questions that followed a presentation provided that they had the appropriate academic knowledge.

Extract 4

"The most important thing is to use English to make a presentation. In our group design project we must make a presentation every week, I think it's a good way to practise our English skill and to communicate our academic account and so I think it's very good."

R5, 5.5.10

Occasionally, the research students attended short lecture courses where they might listen to English but these were the exception rather than the rule. Students also met with staff tutors but these meetings were variable in frequency as they occurred in response to issues arising from the GDP. Reading opportunities existed because of the continuing need to acquire knowledge for the GDP but students whose expertise is in software design may have experienced fewer opportunities to read text. Apart from preparing slides for GDP presentations, there were few formal demands to write English during this period, other than drafting the final GDP report, which was shared among all students. However, individual contributions to the GDP final report are incorporated into students' individual theses and some students had written as much as 30 pages for their theses by July.

By contrast, in the first six months of the MScT program, students spent the majority of their time in intensive lecture courses punctuated by examinations in July and September. They gained extensive practice in listening to English, to native and non-native English speakers alike. Not all students felt confident to ask questions during lectures if they did not understand, although some regarded the ability to do so as a measure of improvement in their speaking ability. Others, who lacked confidence, preferred to ask a member of their peer group in Chinese after the lecture. The MScT students also gained listening and speaking practice at the GDP meetings, which ran fortnightly from mid-March to mid-August (10 meetings in all). The mixture of AVIC and other students is designed to encourage English speaking at the non-scheduled meetings that occur in the interim but only a minority of

students reported active participation with students of other nationalities. The mixture of nationalities within GDP groups also reduced a student's chance to present at the public scheduled meetings which were, in any case, half as frequent as those on the research program. Although the taught course students completed assignments regularly for assessment, these tended to be numerically, rather than textually orientated, and did not offer major opportunities to practice writing of text.

After the final, formal GDP presentations in either August or September, students from both programs spend the majority of their time reading academic papers and writing their theses, typically meeting their supervisors on a weekly basis. Where a supervisor is Chinese, the meetings may not be conducted in English.

8.2.2.2 The challenges

Regardless of the program, students reported the receptive skills of listening and reading as the easiest of language skills, while writing and speaking received equal weight as the most challenging skills. Research students were more consistent in rating reading as the easiest and speaking as the most challenging, other than two students for whom listening created the greatest challenge. Writing also seemed to pose relatively less of a problem to research students than to MScT students. Exceptionally, an MScT student rated speaking as the easiest skill and his situation is described in more detail in the next Section 8.2.3. There was a tendency, more evident amongst MScT students, to rate skills in accordance with their IELTS entry scores.

Problems of vocabulary and pronunciation were mentioned only by MScR students. New technological vocabulary caused difficulties which were exacerbated if the topic differed from the students' engineering expertise. Three MScR students who experienced specific difficulties with pronunciation were attempting to resolve them by using phonetics and voice dictionaries on the web. The relative lack of listening opportunities may account for these findings. Students in both programs, but more frequently taught course students, mentioned listening difficulties with accented English. The heavy lecture timetable, coupled with several NNES lecturers on the taught program, provided a plausible explanation for this finding.

Of the 10 students who were interviewed a second time, six had originally found speaking the most challenging skill, two, writing and two, listening. Only three of these changed their ratings of the most challenging skills – two who had initially rated writing the most difficult now reported speaking as the most challenging, while the views of the third moved in the opposite direction. Overall, students' difficulties with speaking had not diminished over the six months despite the preferential demand for writing skills at the time of data collection for the second interviews (see Extract 5).

Extract 5

"The listening, I can understand what people say but the speaking is not very good as I hoped, because we have a little chance to, not many chances to practise the English, or especially the oral English. So it's a problem."
R11, 21.10.10

Yet, three MScT students interviewed a second time, claimed that they could now present academically and participate in discussions in their chosen fields. Here, there had been improvements but challenges remained in speaking about everyday matters and topics or in particular settings, such as a hospital visit. Some students were reluctant to claim any improvement in language skills. On probing, these claims were not solely indicative of modesty but confessions of an inability to self-assess in the absence of feedback, for instance, on writing or by formal testing. It is possible that the prompt feedback students receive on their speaking abilities in conversation adversely affects their self-assessments of this specific language skill relative to others.

All students attributed improvements in language skills to practice and usage of English language. Conversely, lack of practice explained a failure to improve. Students' recommendations for improving English language were mostly based upon the same principle such as speaking to more non-AVIC students and academics, spending more time on the GDP and, for research students, attending short courses for listening practice. However, the taught course students in particular, noted the time constraints imposed by the full timetable which limited opportunities to speak with other students. Yet, among the interviewees were students who were taking active steps to practice and improve their English by a variety of means, which will be described in the next section. Others who admitted to shyness or lack of confidence appeared hampered or passive by comparison.

8.2.3 The use of English in extra-curricular contexts

The majority of students reported extremely limited use of English outside academic settings (see also Section 10) and had very little experience of English life and culture – one student describing living in Cranfield as little different from being in China. Eighteen students shared rented accommodation with other AVIC students, sometimes at a distance from campus. Because of poor local transport links, each house shared a car to provide transport to and from campus. Chinese was spoken at home except for one house, which was shared with an Hungarian doctoral student where some English was spoken. Two MScT students (T6 and 18) lived in campus accommodation with students of other nationalities where they spoke English. T6, by his own initiative, had moved from a shared AVIC house on to campus. Exceptionally, these students had many friends of other nationalities and attended parties and social events on campus. A third research student had applied to move on to campus at the start of the new academic session in October 2010 but was not optimistic of success. Four research students had student friends, mostly in the AVD department, with whom they spoke English. However, the latter group did not attend campus social events because of shared transport arrangements, which restricted them from being on campus out of hours.

The choice of accommodation was partly due to finance – on-campus housing being more expensive than rented accommodation – but also because on-campus accommodation is virtually unobtainable in the middle of the academic year. Also, students who started their courses in the previous autumn had established themselves socially, making it more difficult for AVIC students to integrate with them.

Very few students used the Cranfield Students' Association premises or joined student societies. Although over half of the students used the university sports facilities, most played sports, such as badminton, with other Chinese students. Neither sports activities nor shopping required demanding English proficiency but tasks such as posting a parcel to China or arranging a visit to the GP were described as taxing (see Extract 6).

Extract 6

Student: "I sent a parcel to my home in Parcel Post Office."

Interviewer: "Yeah, in the Post Office?"

A: "Yes. I communicate with a lady in the office. A little difficult."

Interviewer: "It was difficult?"

A: "Yes. But ... maybe okay because I send the parcel successfully."

T26, 8.6.10

There was some irony about these reports as the majority of students wished to learn more about English culture, regarding it as important for their careers and for national development. In the early interviews, several students mentioned their lack of cultural awareness and resulting inhibitions in case they inadvertently gave offence. Time pressures were frequently mentioned as compromising any wish to socialise or to improve English.

Nevertheless, nine students (five MScR and four MScT) were actively attempting to improve their English, most commonly, by listening to the radio or watching the TV or movies on the internet or by reading local newspapers. Five students who shared accommodation (three MScT and two MScR) variably attended religious meetings, one a bible class, the other a more private affair with residents who had established contact with previous AVIC student cohorts. As well as the students who had opted to live on campus, there were other individual examples of students seeking opportunities to improve their English. MScR5 regularly studied a BBC English course online, MScT2 was learning to drive and MScR11 kept an English diary.

The interview data revealed that the AVIC students had little experience of UK culture due to a mixture of structural constraints, academic work demands, personal inclination and a lack of confidence in English-speaking skills. When asked to advise their successors on how to improve their English language, all recommended living on campus with other students, developing friendships with non-Chinese students and spending more time talking to other students and academics (see Extract 7).

Extract 7

"I would like to just say it is better to live in the campus, because you can...say, when you are living in the campus it means that you have a lot of opportunity to communicate with the foreigners. You can attend the football games and you can use the sport halls any time, if you want. So you can get a lot of friends from any other countries. Just the other one is that you can enjoy your beers in the CSA [Cranfield Students Association]."

T13, 21.10.10

The two students who lived on campus provided a striking illustration of the success of these strategies, especially T18 whose IELTS Speaking sub-score was 4.5 on entry. Confidence, or a lack of it, had a significant bearing on whether a student was able to leave the cultural and social comfort offered by membership of the AVIC cohort. In one example, MScR5 described travelling around the UK but recommended doing so alone to encourage independence and to improve speaking and cultural skills. Those who stayed within the protection afforded by their peer group had little impetus to use English in extra-curricular contexts so creating a vicious circle from which it was difficult to escape.

8.2.4 Evaluations of spoken English

An analysis of the spoken English skills of the students in the interview sound files is detailed in Section 7. This section briefly sheds a methodological light on the conduct of the interviews and the resulting inferences for students' English speaking ability. Early interviews up to June 2010 were difficult to conduct due to issues in communication that led interviewers to occasionally use leading and multiple questions. There were also several occasions when questions required rephrasing in order to gain understanding, despite the intention to use simple, straightforward English. These features were not present in interviews after July 2010, suggesting that students' listening and speaking abilities had improved over the four-month period. Two further informal indices of improving pronunciation and spoken ability were noted. Firstly, the number of transcriber queries on the interview transcripts lessened over time. Secondly, the speech speed of the interviewer was noted to increase in the later interviews as comprehension and communication improved.

In summary, the interview data support and build upon the documentary review by delineating similar differences between the English language demands of the taught and research programs (see Section 6.2). However, the interview data also extend the review findings by showing how GDP implementation impacts differentially upon the students' linguistic skills in the two programs. Contrary to expectations, it appears to be the MScR students who may have more opportunities to practice spoken English on the GDP. Students' experience of studying English in China, with its emphasis upon reading, not only corroborates their IELTS sub-scores on entry but bears out their perceptions that speaking is the most challenging of the language skills even after eight months on the course. Universally, students acknowledged that the route to improving their English lay in practice, regardless of which language skill was involved. Yet for the majority of students, opportunities to use

English outside of academic contexts occurred infrequently and had to be actively sought out. Although a review of students' speech from the sound files indicated improvement (see Section 7.2.3), the majority of students lacked confidence in their use of English in everyday social situations. They regretted the lack of contact with UK culture which resulted from residential arrangements, the lack of synchrony with the conventional academic calendar and, for the MScT students, academic time constraints. In some cases, a vicious circle was operating, since the comfort afforded by membership of the AVIC peer group appeared to inhibit the independence and initiative that would have created opportunities for students to use and develop their English further.

9 DIRECT OBSERVATIONS OF TEACHING SESSIONS

9.1 Method

The observational data served a number of research objectives. It compared the English language demands of the GDPs on the two programs (research objective 1) and identified students' responses to those demands within the context of the GDP (research objective 2). The GDP was chosen for observation methods for several reasons. Firstly, the documentary review and interview data had demonstrated the GDP to be the main opportunity for students to practise and develop their English language speaking skills on the programs. Secondly, the GDP offered a relatively public, and therefore accessible, setting when compared to lecture and supervisor-student meetings. A further advantage relates to a key feature of observation methods, which is the access to everyday reality, unfettered by issues of control. The public character and size of GDP meetings rendered it unlikely that either the presence of the researcher or the conduct of the research would have significant influence upon proceedings. The observational data also contributed, but in more limited ways to research objectives 3 and 5. Although not part of the original proposal, sufficient data was gathered to be able to evaluate some students' linguistic progress over the duration of the GDP, particularly where it could be combined with interview data. It was also possible to observe the relationship between AVIC and non-AVIC students on the MScT (research objective 5).

Because of the potential significance of the GDP and associated data, considerable time was devoted to observation. Around 50% of MScR sessions and 70% of MScT sessions were observed between April and early September, a total of 19 sessions. They included 10 MScR and seven MScT regular sessions and both final formal presentations (see Table 8 for details). Timetables for the two programs not infrequently clashed which resulted in approximate alternate sessions being observed for the weekly MScR sessions (MScT sessions took place fortnightly). Because of the format of the MScR sessions, three sub-group meetings were also observed on the dates shown in Table 8. No sub-group meetings were observed in the MScT GDP program. GLJ observed all sessions except the final presentation for the taught program, which CB observed. The observations were direct rather than participant, the researchers sitting in various locations within the student body during the sessions. In the MScR sessions, however, it became necessary to sit immediately behind the academic staff who sat in the front row in order to hear more clearly any interactions between the presenting student and staff. Field notes were handwritten during the session and transferred to computer files within 24 hours of the observed session.

MScR GDP sessions		MScT GDP sessions	
No.	Date	No.	Date
1 + Structures sub group	15.4.10	1	22.4.10
2	29.4.10	2	6.5.10
3	13.5.10	3	24.5.10
4	20.5.10	4	3.6.10
5	24.6.10	5	17.6.10
6	1.7.10	6	8.7.10
7 + Avionics sub group meeting	15.7.10	7	22.7.10
8	29.7.10	8 Final	19.8.10
9 + Air Frame sub group meeting	5.8.10		
10	12.8.10		
11 Final	3.9.10		

Table 8: Dates of observed GDP sessions

9.2 Findings

9.2.1 Organisation of GDP sessions

Despite similarities on paper, the two GDP programs were organised differently. Each of the four multinational MScT teams of around 11–12 students were instructed to select a leader and apportion tasks among members in the intervening periods between GDP sessions. For every GDP session, each team prepared a PowerPoint presentation lasting around 10 minutes with a further 10 minutes for questions. The presentations were given by a team of three students, and teams were instructed to share presentation duties equally over the duration of the GDP. Typically, the four presentations lasted between 1½ and 1¾ hours followed by a short break before the tutors presented their feedback. There was no formal agenda and not all teams listed presenters on their presentations. Most sessions, which took place in a lecture theatre, were finished within 2½ hours. Two tutors ran the sessions, monitoring presentation times, posing queries and offering feedback. Occasionally, other staff members attended the session but they did not have a participatory role. For the question and answer sessions after each presentation, tutors remained in their seats in the front rows of the lecture theatre but for the final feedback, tutors came to the front of the lecture theatre to face the students.

The MScR students were assigned to three sub-groups responsible for different aspects of aircraft design: structure and aerodynamics; systems; and avionics. Teams consisted of between seven and 11 students and each member had an assigned responsibility, such as environmental control systems or flight deck controls. Several staff members, as many as eight, attended the GDP sessions, sitting together in the front two rows of the seminar room. The first, formal half of the GDP session was introduced and facilitated by a student who maintained this role at all sessions. Printed agendas were distributed to staff members with the names of the presenters, their topics and timings. The sub-group leader and selected sub-group members then presented their work in turn, this part of the session lasting no more than 90 minutes. After each presentation, tutors questioned or commented upon the students' work from their seats in the front row. Following a short break, the students reconvened in the separate sub-groups where each member presented their individual work to the sub-group and associated staff members. The duration of sub-group meetings was around two hours.

Certain consequences flowed from the management of GDP sessions, which had implications for students' usage of English language on the program. MScR students had many more opportunities in this respect, not only because there were double the number of sessions overall, but also because the frequent sub-group meetings were attended by staff and took place in English. In this context, they also received more feedback on their individual work in English, compared to MScT students.

The findings from an observed sub-group meeting of the Avionics MScR students in mid-July are pertinent here. Five students participated and all made PowerPoint presentations, with the tutor occasionally interjecting to clarify or question. More significantly, at three points during the meeting, the students engaged in vigorous debate with one another for 10–15 minutes. On the first occasion, a student challenged the use of an equation used by another, on the second, a number of students questioned figures in another presentation, and in a third, the presenting student debated the remit of his task. All students participated in the discussions, sometimes getting up from their chairs to come to the front to speak. By contrast, the tutor's role during the session was largely Socratic. The 90-minute meeting thoroughly belied the stereotype of the E. Asian student and demonstrated how group work might provide good opportunities for English usage. Other observed sub-group meetings were less interactive than this example, but in every case, all students presented and discussed their work with tutors and other students. These findings may explain why MScR students were so positive about the GDP in the interview data.

In view of the insights gained from the sub-group MScR meetings, the absence of any observational data from MScT team meetings is regretted. No conclusions can be drawn about the use of English language in MScT team meetings because they were run by the students and records of attendance were not available. Instances in the interview data suggest that AVIC students did not use the team meetings as opportunities to develop their speaking skills. Student T2 stated in his interview that his team talked in Chinese when the non-AVIC students were absent, and T26 reported that if unable to follow the English in team meetings she would ask an AVIC colleague in Chinese rather than risk using English.

9.2.2 Student presentations in the GDP

An intention to observe how frequently students presented at GDP sessions was thwarted by difficulties identifying MScT students in the absence of a meeting agenda. Assuming students shared presentation duties equally then an individual MScT student would be expected to present three times over the duration of the GDP. The calculation agreed with the interview and observational data. Presentations on the MScR program favoured the sub-group leaders since they presented at most observed sessions, although not necessarily at length. In both programs, where there was a problem that was difficult to resolve, then that student might present more frequently or for longer.

The MScT AVIC students' presentations were generally between three and six minutes with more confident and fluent students speaking for longer. Only once was an AVIC student, T12, warned that he was over time, whereas non-AVIC students not infrequently ran over time. MScR presentations were more variable in length, between five and 20 minutes. There was a tendency, particularly on the taught course program to present in a rather formulaic manner, to use stock phrases and to read from their slides without any extrapolation. Apart from the minority of students whose English-speaking abilities were good, there were errors in pronunciation and grammar but most presentations were comprehensible. Nevertheless, there was a growing confidence and fluency in students' GDP presentations over time. Students, R5, R16, R20, T12 and T14 stood out in terms of improvement. Tutors on the MScT often mentioned English language and presentation styles in their feedback, encouraging students to speak up and to use slides as memory prompts instead of reading from them literally. Feedback on English during MScR sessions was more specific and given at the time.

During the questions that followed a presentation, students had opportunities to speak extempore, a challenge that most were equal to, given sufficient knowledge. However, there were differences again between the two programs, as each student on the MScR was questioned individually, whereas on the taught program, questions were taken as a team, although a tutor might well direct his question to a specific team member. On two occasions when AVIC students remained silent following a question, a European team member stepped in and replied, once from his seat in the audience.

The final presentations of the two programs differed considerably in style and format. The four-hour, MScR final presentation was attended by four external examiners and several Cranfield staff members. The MScT final presentation, which ran along similar lines to a regular GDP meeting, was not summatively assessed, although team reports are sent to AVIC where they are assessed and compared with previous cohorts' work. All students must contribute to the group GDP report and include a section in their theses, which describes their individual work on the GDP.

The MScR final presentation was an event of some formality – students wore black suits and attendees were given a copy of the GDP report and a timed agenda on arrival into the lecture theatre where Chinese music was playing. In his introduction, student R12 stated that the GDP had: 'entailed 29 students, 20,000 working hours, 23 weekly meetings over five months'. Twelve students gave presentations during the morning which included videos of the plane's design and simulated flight. Leaving aside some pronunciation errors, almost all presentations were clearly delivered and comprehensible; only a few of the answers to examiners' questions were inaudible. The students were twice complimented on their English by a native English-speaking examiner and by the GDP Director for a highly professional final presentation.

At the MScT final presentation, the usual format was followed, each team being allowed 30 minutes overall. Twelve students, of whom 10 were AVIC students, gave five minute presentations but all team members came forward to take questions at the end of each team presentation. Speakers were chosen by lottery. The standard of presentation and English was variable; a minority of students were confident, fluent and audible but there were also some anomalies which were pursued in later interviews. Student T6, whose presentation had lacked confidence despite good speaking skills, explained that he lacked expertise in the topic of his presentation.

9.2.3 Socio-cultural aspects of GDP sessions

The findings in this section describe observed relationships between MScT AVIC and non-AVIC students at GDP sessions. Almost all AVIC students attended the GDP sessions from beginning to end but the non-AVIC students' attendance, for whom the GDP was voluntary, was closer to 50% and, usually, for part of the session only. Each student group tended to sit together, the Chinese at the front of the lecture theatre and the non-AVIC students in the back rows, except when they were presenting. These practices set the two groups of students apart from one another but at every session from 3 June 2010 onwards, one or two AVIC students, often T14, were seen talking to non-AVIC students in English during the break. Student T12 usually spent the break asking questions of the ancillary tutors in English. The tutors on the MScT encouraged the students to question presenters and always invited questions from the floor before making comments themselves. This strategy proved effective as, increasingly, AVIC students asked questions of their colleagues after presentations. Therefore, there was evidence that some of the MScT AVIC students did make efforts to use English both socially and academically in GDP sessions.

In summary, the observational data confirmed the interview data in displaying more opportunities for listening and speaking English on the research GDP compared to the taught program. This was due to the greater number of meetings overall and the contribution of staff to sub-group meetings which ensured that English was used throughout. MScR students responded positively to these demands as their spoken English in presentations improved over the duration of the GDP. While the spoken English of some MScT students also improved, there did not seem to be the overall improvement in the group nor did they display the confidence evident in the final MScR presentation. Although derived from limited data, there was evidence of social integration between AVIC and other students on the MScT program. Two MScT students, in particular, whose spoken English in presentations improved during the GDP, were also those most likely to be observed talking in English during breaks to staff or non-AVIC students.

10 DIARY STUDY

10.1 Methods

The diary study addresses the fourth research objective, which relates students' total study hours and workload to English language progress over the first 10 months of the MSc programs. It was the only data collection method feeding into this research objective. The diary study aimed to capture students' total usage of English including background reading, lectures, GDP and writing. The assumption here was that the time spent formally in the classroom represented only the tip of an iceberg in terms of students' English language usage.

The focus was initially upon the 24 students in the ongoing English language course, equal numbers from the two programs. These students were enrolled on the English course via the 'Blackboard' electronic system, which is in widespread use across campus and was anticipated to be familiar to the students. A short set of questions was constructed asking how much time students spent using English during study and in extra-curricular activities and further divided the use of English into the different language skills (Appendix 5). The diary was deliberately kept brief, used straightforward language and invited simple, numerical answers, as complex or lengthy questions could eat into precious study time and might be ignored. The questions on extra-curricular usage were introduced in view of students' reports of limited usage from the early interviews. The questions were reviewed by an academic member of staff responsible for the management of the Blackboard system who advised us about delivering the diary via Blackboard.

The diary questions were posted on the 'blog' pages of Blackboard early in May 2010 but only four replies had been received three weeks later. To encourage more replies, non-respondents were emailed a reminder within the Blackboard system resulting in four more replies by the end of the month. Incomplete answers were followed up with supplementary questions via the blog or email, although not all students responded to the second enquiry. Overall, five taught course and three research course students replied.

The findings were incomplete and ambiguous. Not only was the response rate low (33%), but students did not answer all questions and some replies displayed a wide range of time estimates suggesting that the questions had not been fully understood. Although this is possible, it seems more likely that the questions were insufficiently explicit. Separating the four language skills introduced a degree of artificiality since listening and speaking are closely associated, for example. It seems reasonable to conclude that our intention to gather numeric data encouraged the use of contrived questions and unreliable data. Consequently, it cannot be inferred to what extent students' English proficiency or poor question structure contributed to the disappointing result.

To address the failure of the diary on the Blackboard blog, additional questions were added to interviews from June onwards but this produced another partial and, therefore, unsatisfactory dataset. A second attempt to replace the diary was made using an anonymous, simplified, paper version of the diary questionnaire (Appendix 6), which was distributed to all students who attended six English writing classes between late October and December 2010. In most weeks, a single supplementary question was included either about students' confidence in using one of the four language skills in English or about students' intention to use a proof reader to check for the correct use of English language in the thesis. A five-point scale from 'strongly agree' (1) to 'strongly disagree' (5) was used for the confidence questions and 'Yes', 'No', 'Undecided' responses for the proof reading item. The questionnaires were completed at the sessions and collected by the class tutors. One MScT session was lost due to a tutor's sick leave. The classes were voluntary and no registers were kept but separate classes were held for MScR and MScT students. Questionnaires were dated to the session week but, due to some confusion, some leftover questionnaires from previous weeks were used in subsequent weeks with the consequence that the same supplementary questions were issued twice.

10.2 Findings

Overall, 157 questionnaires were returned – 91 from MScR students and 66 from MScT students. Session attendance, as judged by returned questionnaires, varied between six and 25 for MScR students and 10 to 16 for MScT students. Apart from one session, between 55% and 75% of research students attended the writing class sessions. The sampling rate for the MScT students was lower – between 36% and 58% attended the sessions.

The results for students' estimates of time spent using English on extra-curricular and academic work are shown in Table 9. For English usage related to academic work, the MScR students' estimates marginally exceed that of their MScT colleagues – 5.21 hours per day compared to 4.95 hours per day. Given that both groups of student were occupied in the same task of thesis writing, the consistency in academic work was reassuring. Two students replied to the first questionnaire saying that they had not used any English in the past week. This may have been due to their interpretation of the word 'course' to mean a series of lectures. The wording was changed to 'independent research project' in subsequent questionnaires to avoid further confusion, and responses became more coherent. However, the variation between individual students in the number of hours reported may have been due to the need to use digitally-based software programs in which text is limited. The extra-curricular use of English is much less than that used in academic work which agrees with evidence from other data sources. In extra-curricular contexts, research students were spending the equivalent of half of the time spent on academic issues; for taught students, the ratio of time spent similarly was one-third. The differential between the two groups was greater than for academic work. MScR students reported using 2.75 hours per day, compared to 1.61 hours per day used by the MScT students. The results cannot explain why research students might be more likely to use English outside the classroom but the results are congruent with the apparent greater proficiency in academic presentation seen at the GDP presentations.

The results for students' confidence ratings in the different language skills are shown in Table 10. Research students were asked to rate their confidence in reading at two sessions, and taught students to rate their confidence in listening at two sessions. The average confidence ratings for the two taught course sessions were close (2.87, n=15 and 2.91, n=11) but there was greater discrepancy between the two research student class ratings (2.38, n=21 and 2.11, n=9). Only the larger class is shown in Table 10 because of the risk of duplicating responses. This also ensures that the response rate does not fall below 50% for any confidence rating. Allowing for the absent data on MScT students' rating for reading skills, students from both programs are least confident in writing in English, followed by listening, then speaking and are most confident about reading in English. The range in MScR students' confidence ratings between the reading – in which they have the greatest confidence – and writing which gains their least confidence is 0.78. The range for MScT students' confidence ratings between listening and writing is 0.63.

Session	Range of hours/day spent by MScR students using English on academic work	Average hours/day spent by MScR students using English on academic work	Range of hours/day spent by MScT students using English on academic work	Average hours/day spent by MScT students using English on academic work	Range of hours/day spent by MScR students using English in extra-curricular activities	Average hours/day spent by MScR students using English in extra-curricular activities	Range of hours/day spent by MScT students using English in extra-curricular activities	Average hours/day spent by MScT students using English in extra-curricular activities
1	1 - 10	4.98	0 - 7	3.57	0.5 - 10	3.54	0 – 5.5	1.63
2	2 – 12	4.97	Session cancelled	Session cancelled	0.3 - 10	2.42	Session cancelled	Session cancelled
3	1 - 8	5.7	2 - 12	5.18	0.3 - 6	2.12	0.5 - 4	1.39
4	3 - 8	5.4	3 - 10	5.43	0.5 - 8	2.83	0.5 - 4	1.63
5	3 - 7	4.78	1 - 8	4.91	0 - 6	2.74	0 - 3	1.59
6	4 – 8.5	5.58	2.5 - 10	6	0 - 7	2.0	0.5 - 3	1.85
Total	1 - 12	5.21	0 - 12	4.95	0 - 10	2.75	0 – 5.5	1.61

Table 9: Hours spent using English language in academic and extra-curricular contexts by MScR and MScT students

	Numbers of MScR students	*Average ratings of MScR students	Numbers of MScT students	*Average scores of MScT students
Writing in English	25	3.16	16	3.5
Reading in English	21	2.38	No data	No data
Speaking in English	15	2.73	14	3.14
Listening in English	21	2.62	15	2.87

*Rating scale: 1=strongly agree, 5 = strongly disagree

Table 10: MScT and MScR students' confidence ratings for language skills

For all skills, the research students rated themselves more confident than their taught peers, with differences between 0.25 – 0.41 on the rating scale. The differential was least for listening skills where taught students might have been expected to express more confidence in view of their greater experience. The largest differential between the two groups of students was in speaking where MScR students rated themselves almost 8% more confident about this language skill.

Students' intentions to use a proof reader were similar for both programs, although the response rates were low in each case, 36% for MScT and 38% for MScR students. Of the MScT students, four reported their intention to use a proof reader, five had decided not to use a proof reader and one was undecided. Five MScR students reported their intention to use a proof reader but six were not planning to use proof readers.

After an initial failure to gather useful data on students' use of the English language via an electronic blog, a second attempt using a paper questionnaire during the period when students were writing their theses proved more successful. The data demonstrated that students were spending, on average, around five hours a day using English in thesis development towards the end of each program.

However, considerably less time was spent using English outside academic work. Nevertheless, MScR students' extra-curricular use of English was still much greater than that reported by their taught peers. MScR confidence ratings for the different language skills were also greater than amongst MScT students. All students felt least confident about writing in English but speaking in English displayed the greatest gap in confidence ratings between the students on the two programs.

Unfortunately, though, the revision meant that the intended tracking of English language usage against students' linguistic progress over different parts of the programs was not achieved. On the other hand, the timing of the questionnaire coincided with the principal demand for students' writing, the skill on which least data had been gathered. The findings from the diary aligned well with the findings from other sources. As examples, the confidence ratings favouring the MScT students were supported by the GDP observations; the limited use of English outside academic work was supported by the interviews and students' greater confidence in reading skills by the pre-entry IELTS scores. One minor contradiction may be explained by the intentional and unintentional effects of sampling. In the diary, students rated writing as the skill in which they had least confidence, yet in the interviews which were conducted only a month earlier, students claimed that speaking presented them with the greatest challenge. Students with lower IELTS Speaking sub-scores were preferentially selected for interviews so their concern with speaking is logical. Likewise, it is plausible to suggest that students seeking support in the writing classes where the diary questionnaire was distributed would have less confidence in their writing skills.

11 THESIS SUPERVISORS' QUESTIONNAIRE

11.1 Method

In this part of the case study, supervisors of AVIC students were surveyed about their students' English language skills with an emphasis upon writing, the purpose being to contribute towards the evaluation of students' linguistic progress (research objective 3) in combination with a variety of English language tests (see Section 7), students' self-reports (see Section 8) and observational GDP data (see Section 9). In a previous study, a thesis supervisors' questionnaire had proved useful in detecting the effects of variable proficiency in NNES English writing skills upon the workload of supervisors of Masters theses (Lloyd-Jones et al, forthcoming). Given the focus and context, the supervisors' judgments offer a relevant and distinctive perspective on students' linguistic progress when compared to generic tests of English language and students' self-reports.

A brief, electronic questionnaire was constructed asking supervisors about their supervisory experience, whether they normally gave feedback on written English to their students and to comment upon the English language proficiency of the AVIC students in terms of supervisory workload (Appendix 7). When relevant to the question format, a five-point scale from 'strongly agree' to 'strongly disagree' was used. Supervisors were also asked whether they did, or did not, ignore poor English in relation to marking practices. An open question allowed respondents to make any further comments they felt to be relevant. The questionnaire was anonymous so that neither students nor supervisors could be identified from the results. The questionnaire was satisfactorily piloted within the Learning and Development Department.

Lists of supervisors from the relevant departments were obtained through course administrators. Ten supervisors shared the supervisory workload on each program. The number of students being supervised by each supervisor varied between one and 11, with 13 students being co-supervised. The highest number of students under a single supervisor was seven. An accompanying email asked the supervisors to comment on their experiences of the current cohort of AVIC students.

The questionnaire was open for six weeks from the start of November 2010 and two reminder emails were sent to supervisors during the period. The responses from a supervisor who was unable to access the web link for the survey were supplied by phone to one of the researchers (GLJ) who entered them on the website.

11.2 Findings

Of the 20 supervisors, 10 responded to the questionnaire – a 50% response rate. For the taught course, 70% of supervisors replied but the response rate from the research program was poor at 30% of supervisors. Experience of supervising Masters theses ranged from one to 40 years, with an average experience of 13 years. Because of the small numbers involved, the survey results for the two programs were aggregated. A clear majority, eight (80%) supervisors either agreed, or strongly agreed, that they always gave feedback to AVIC students about their English language proficiency. One supervisor neither agreed nor disagreed with the statement and another strongly disagreed that he always gave feedback on to AVIC students about their English language proficiency. Five (50%) supervisors agreed that their supervisory workload had been adversely affected by the English language proficiency of their AVIC students. Three (30%) disagreed that their workloads had been impacted by AVIC students' language proficiency and the remaining two supervisors (20%) neither agreed nor disagreed with the statement. The item about the standard of English in the Masters theses of AVIC students produced the most varied responses. Four supervisors (40%) either disagreed or disagreed strongly, three (30%) neither agreed nor disagreed and three (30%) either agreed or strongly agreed with the statement.

Reported marking practices were similarly varied. Three (30%) supervisors always deducted marks for poor English, two (20%) did so conditionally and one (10%) ignored any English language problems. The remaining four (40%) supervisors gave open responses in reply to this question. One stated that he would deduct marks on the basis of poor presentation and another said he would request revisions as minor corrections. One supervisor advised the use of a proof reader, for instance, an English-speaking student to review the thesis, and another requested his students to make changes at the draft stage to prevent any loss of marks. These examples are compatible with supervisors' feedback practices reported above. Two other points emerged from the open responses (see Appendix 7). Supervisors were concerned, above all, with clarity of meaning. If the sense of the text is unambiguous, then minor problems of English usage were ignored. Secondly, three supervisors noted considerable variation in AVIC students' proficiency in English language, which might have unpredictable consequences for a supervisor's workload. One supervisor further commented on the positive contribution that the GDP made towards AVIC students' English language skills.

Despite a low response rate, the variation in supervisors' experiences and views – especially the lack of consensus about the standards of written English in AVIC students' theses – can be explained by the range of English language abilities among the AVIC students on their entry IELTS sub-scores (see Section 7). On balance, the results suggest that difficulties in writing English adversely impacted upon the workloads of half of the supervisors who responded to the survey (ie a quarter of all supervisors). These findings are congruent with the low diary confidence ratings for writing skills, albeit that the responding students were already seeking help with writing at the English classes. On the other hand, the writing test results indicate a general improvement in students' writing but the small sample, 10 students from each program, is not incompatible with the variability in writing abilities noted by supervisors. Analysis of students' samples of writing generally showed progress when compared to students' IELTS Writing scores on entry to Cranfield, with most students showing an increase of 0.5 on the IELTS Writing band scale.

12 SUMMARY OF THE CASE STUDY FINDINGS

Mainly as a result of the way English has been taught in China, the AVIC student cohort arrived in the UK with pronounced differences between their receptive and expressive language abilities. The lack of opportunities to use expressive language skills in China accentuates these distinctions. Their entry IELTS scores showed that their strengths lie in reading and listening and their weaknesses in writing and speaking. Although the two programs differed in the demands for English language skills, students on both programs must write a Masters level thesis and regularly present their work during the extensive GDP. In addition, the MScT program demands good listening skills to make good use of the full lecture course which begins the program. The GDP on the MScR program provided more opportunities for students to use listening and speaking skills due to more frequent meetings and staff participation in sub-group meetings. This finding was unanticipated since the presence of non-Chinese students on the MScT program had been expected to encourage greater use of spoken English, compared to the research program where all students were Chinese. Students placed a high value on the GDP, regarding the challenges it presented to their abilities to listen and speak in English as opportunities to practice and improve their skills. Despite the practice and improvements in listening to, and speaking English, students – especially those with poorer skills – still considered speaking the most challenging language skill of all. Some students also registered a lack of confidence in writing skills during work on the independent research projects where writing skills were essential.

One of the most significant findings was how little English was used by the AVIC students outside the program because of residential arrangements off-campus and asynchrony with the conventional academic calendar. This was particularly the case for the MScT students who had less extra-curricular time overall. The majority of AVIC students were dependent on the peer group for all social life and activities outside the academic context, hence opportunities to use English were negligible unless actively sought out by the individual student. Students had to use considerable initiative and independence to leave the protective membership of the peer group in order to gain access to UK culture and to use the English language. As a result, the academic context emerged as the main platform where students could practice and improve their English. Another consequence was a persistent lack of confidence in speaking in English outside campus that further inhibited students from developing social independence and set up a vicious circle from which it was difficult for students to escape.

The test evidence for students' linguistic progress must be interpreted with caution due to a combination of small, convenience-based samples and the short duration of the research. Within these limitations, though, there was evidence for improvement in reading, writing and speaking. The test data on listening were technically flawed. Supervisors described writing skills among the group as variable and a quarter of all supervisors admitted this had impacted adversely upon their workload, which was congruent with the entry IELTS sub-scores in this skill. On the other hand, observational data and interview sound files showed that speaking and listening skills had improved, although students lacked confidence in their abilities to speak English outside the academic context and were reticent to acknowledge the significance of increased English language proficiency.

13 DISCUSSION

The discussion is structured upon four key findings of the case study: students' extra-curricular experience; English proficiency at entry; course implementation; and an evaluation of the admissions requirements for English language test scores and the need for English language provision both pre-sessional and in-sessional.

13.1 Extra-curricular experience

The present case study confirms existing research which portrays NNEST international students as socially and culturally isolated (UKCOSA, 2004; Andrade, 2006; Zhang and Brunton, 2007; Sawir et al, 2008; Brown, 2008; Campbell and Li, 2008; Walsh, 2010). While no evidence of the more negative aspects of isolation evident in earlier research was found in the current study, the lack of contact with UK nationals and culture was undoubtedly a matter of regret and disappointment for the AVIC students. The very limited use of the English language outside the MSc programs for the majority of students was, nevertheless, surprising and is the main contribution of the present study to the research literature. So dependent were the AVIC cohort members upon themselves for extra-curricular activities that it had the unintended consequence of restricting opportunities when English might be used to educational settings. For example, the majority of AVIC students who played sports did so with their colleagues rather than with other students. In common with Zhou and Todman (2009), students' concerns about socio-cultural factors persisted throughout the duration of the research while academic issues receded.

There seemed to be a number of related influences contributing to the AVIC students' social situation, including structural constraints, grouping phenomena within the AVIC cohort, and students' English language proficiency. The main structural constraints were the timing of the course, which is six months after the start of the regular campus year, and the lack of national diversity in the student cohort, especially on the MScR program. However, it appears to be the consequences of the structural issues, rather than the structural issues themselves, that affect students' extra-curricular experience, in particular, the residential arrangements off-campus. Life off-campus is significantly different from campus residence. Students who opted to move in to on-campus accommodation early on in the program were more socially integrated than their peers living outside. In addition, they had better speaking skills, were more confident and had made friends outside the AVIC cohort. On reflection after six months' experience, existing students advised future AVIC students wanting to improve their English to live on-campus and interact with non-AVIC students. While sharing accommodation with peers maintains security and continuation of Chinese culture through, for instance, language and food, it also detaches the group members from other campus-based students and hinders social integration. By comparison, other issues such as academic time demands are likely to be no greater than for other NNEST students following the same programs. The lack of national diversity among students on the MSc programs is discussed in Section 13.3 below.

The social impact of the AVIC cohort structure is considerable in this study. As Zhou and Todman (2009) found, social group membership can have a considerable influence on attitudes and judgments. There are advantages and disadvantages of AVIC group membership. On the positive side, the cohort acts as an accessible, informal resource on academic, linguistic and cultural matters, maintains some aspects of home culture and provides a peer reference group against which individuals can compare their progress, attitudes and abilities. These are all beneficial aspects of group membership which help international students to acclimatise to the strangeness of their new circumstances. Yet, the maintenance of grouping phenomena may actually inhibit members from seeking experiences outside the boundaries of the group that may be beneficial to them in other ways such as linguistic

development. This appears to have happened among the AVIC students, where students may choose between either social reliance upon, or relative independence of, the cohort. The latter course of action requires a degree of individualism and determination which is evident in student narratives about travelling alone, playing football with the university club, moving residence to campus or attending religious meetings. The latter example potentially demonstrates how few opportunities there are for students living off-campus to use English since the AVIC students who attended these meetings were not doing so as a part of religious observance. It also explains the high value placed by students on the GDP in the absence of opportunities to use English outside the program. However, those who did break out from the cohort in social terms expressed more confidence in their linguistic and social skills and showed improvements in the tests and assessments. Contrastingly, students whose social dependence was cohort-based lacked confidence with their language skills. It is conceivable that low collective confidence in language skills within the cohort would increase the attractions of the peer group and inhibit independence.

Even the more socially independent students related difficulties when dealing with practical acts and practices with which a UK resident would be familiar, for instance, attending a hospital appointment, posting a parcel abroad, arranging appointments and even, locating and taking out a library book on loan. Possibly, the more independent students encountered problems precisely because of their wish to access UK culture, which their less adventurous peers did not experience. These tales echo Walsh's conclusions (2010) about the significance of cultural knowledge combined with language competence for international NNS students. As Walsh points out, a failure to understand and follow cultural norms appropriately may obstruct social and academic integration and reinforce national stereotypes. In contrast to Walsh's study though, extra-curricular contexts posed students more difficulties than the academic environment. If cultural knowledge cannot be taught successfully, and controversy surrounds this issue (Walsh, 2010), then willingness to seek experience beyond the boundaries of the cohort group acquires greater significance for other students finding themselves in similar situations.

13.2 English language proficiency on entry

Students' experiences of learning and using English in China were reflected in their IELTS scores on entry. Students scored highly in Reading and Listening but less well in Writing and Speaking. All interviewees agreed that these variations were a result of the teaching methods used in China, coupled with a lack of opportunities to speak English in everyday life, especially for rural dwellers. The range of sub-scores is significant too. Students were sometimes so able in reading that the Reading sub-scores compensated for low scores of 4.5 or 5 in Writing or Speaking in order to meet the required entry score of Band 6.0. This explains why students found the speaking and writing demands of the course challenging, particularly in the early stages. Zhang and Mi (2010) describe similar findings in their study of undergraduate Chinese students in Australia claiming that in China, 'the actual training in listening and speaking skills remains largely a goal on paper'. The findings are historical and it is possible that English teaching in China is changing to address the problem of differential abilities in language skills.

The relative weakness in speaking skills has other consequences for Chinese students. Firstly, it is easy to see how it contributes towards the stereotype of the passive, Asian student in western settings. This is particularly so given the AVIC students' fears that linguistic errors might cause cultural offence. Secondly, it provides a reason for the general lack of confidence among the peer group and a rationale for their reluctance to seek social independence outside the peer group.

13.3 Curricular implementation

In their paper, Zhang and Mi stress the importance of language practice to improved proficiency and relate this to different forms of curriculum implementation. The GDP in the present study is a prime example because of the good opportunities it gave students to practice and develop listening and speaking skills. However, one of the surprising findings of the case study is the greater improvement in MScR students' speaking skills compared to their MScT peers. The expected advantage of mixed nationalities on the MScT course did not accrue, probably due to the smaller number of GDP sessions overall and the lack of staff involvement in sub-group meetings. In addition, it is possible that the voluntary nature of the GDP for non-AVIC students was reflected in their attendance, which may, in turn, have compromised English usage in sub-group meetings. The greater time devoted to English usage in extra-curricular contexts by MScR students may indicate they were more independently inclined, although whether this is because of personal inclination or the more individualistic approach of a research-led course is speculative. However, it seems unlikely that disposition would entirely account for the differences in speaking skills.

There are also methodological implications which flow from the case study, in particular, the important contribution that observation methods can make to more conventional mixed methods research that combine questionnaires with interview data. In this case study, the observational data were a richly significant source of evidence which helped to link apparently disparate findings, such as the early indications from the curriculum analysis favouring the English language development of the MScT students with the greater improvement in MScR students' speaking skills. Observation of the GDP sessions permitted a more complex picture of the effects of curricular implementations to emerge, and warns against simplistic and undifferentiated notions of curriculum where student outcomes are being evaluated.

13.4 Evaluation and recommendations

In this section recommendations are proposed in response to the findings of the case study overall, including those addressed under research objective 6: to evaluate the admissions requirements for NNEs students and the need for in-session English language support.

The relationship between academic adjustment and academic performance as defined by Andrade (2006) is complex and not a question for the present study. Yet, it is plausible to suggest that where students possess borderline English language proficiency, any opportunities to practice and develop language skills should benefit the NNEs student's acclimatisation socially and academically. When extra-curricular English usage is as limited, as in the present context, then these are opportunities missed.

As discussed earlier (Section 2.2.1), where the responsibilities lie for international students' social well-being are not clear-cut despite a tendency to present the issue in black or white terms. As the case study shows, the realities are more subtle, dynamic and even, unexpected. Where responsibilities are shared and underlying assumptions lack transparency, it is understandable that uncertainties may exist in terms of actors and actions (Bartram, 2007). The current evaluation arising from this case study concludes that responsibilities for international students' social well-being are widely shared among the stakeholders and actors, including sponsors, the HEI, academic staff, service departments and students, and would benefit from being made more explicit.

Firstly, Chinese students should be better prepared for UK Masters degree level study, particularly in respect of speaking and writing skills. The benefits of shifting the emphasis in English teaching in China from reading to speaking and listening skills are self-evident. Similar findings have arisen in a recent Australian study (Zhang and Mi, 2010) and AVIC students themselves recognised the problems

and the solution. While secondary teaching methods at a national level cannot be expected to change rapidly, it should be possible to tailor the pre-session English course for prospective students coming to the UK with appropriate emphases on speaking and writing.

Secondly, the HEI needs to review current admissions requirements for English language, and specifically, to consider IELTS sub-scores, as well as overall scores. Currently, the lowered entry requirement for these students, coupled with the variations in language skills among the cohort, resulted in 27 students being admitted with very low scores (4.5 and 5) in Speaking and Listening. The consequence of accepting students with less than adequate language skills is that many struggle to cope with the demands of postgraduate study. This clearly puts such students at a disadvantage and makes many academic tasks exceptionally difficult to complete successfully. If students are accepted with such low scores for Masters level study, then more in-session English language support will be necessary and for which there will be resource implications.

Thirdly, steps should be taken to ensure that large cohorts of co-national students share accommodation with other nationals, to encourage English language development and social integration within the student community. While this principle operates in the allocation of campus accommodation, it does not extend outside campus. Students regretted the consequences of sharing accommodation with their peers off-campus. Some students indicated that financial considerations influenced accommodation decisions but also that these constraints might be removed in future years.

Fourthly, consideration should be given to developing a group of native English-speaking, locally-based volunteers who would be willing to talk to NNES students in need of English-speaking practice. The 'English corner' example cited in this report could be used as a model and regular sessions organised to take account of program timetables. In the present politico-economic climate, the economic and social benefits of utilising a bank of volunteers are clear.

Finally, time and effort needs committing to managing students' expectations in relation to English language development and making clear to them that responsibility for taking up opportunities to improve their English and to achieve social integration rests largely with them as individuals. Simple policy statements could articulate and outline responsibilities. It would be wise, for instance, to point out the consequences of different accommodation options in this respect.

14 CONCLUSION

As the numbers of international higher education students continue to increase, China has assumed the pole position as a donor nation, sending 50,000 students to the UK every year. This study has examined the English language demands made upon a cohort of Chinese postgraduate engineering students taking Masters courses in the UK and their responses to those demands. As well as exploring academic and extra-curricular settings, the experiences of students on two Masters programs were compared, one a Masters by Research, the other a taught course. Students on the Masters by Research were exclusively Chinese in contrast to the taught program, which included a minority of other non-UK national students

The majority of research exploring the socio-cultural experiences of international students tends to portray a rather negative image of isolation, stress and loneliness. On the contrary, a minority of authors project a more optimistic viewpoint while still recognising that full socio-cultural assimilation represents an ideal not a reality. The evidence from the current research provides support for both views. Opportunities to use English and to interact with native English speakers were minimal and constituted a barrier to social integration with other students. The presence of peers and cohort structure both mitigated and reinforced these effects. Feelings of loneliness were lessened through

membership of the peer group who maintained the home language and cultural norms but the same effects also inhibited the independence that would have improved confidence and encouraged greater English usage and engagement with other students.

Previous research has not examined the relationship between students' socio-cultural experience and English language development. The lack of English usage in extra-curricular settings resulted in students becoming dependent upon the academic program as a vehicle for language improvement. The chief opportunity arose in a group design project which successfully encouraged students' speaking skills but details of implementation had unexpected effects. Different measures and assessments of students' English language proficiency, including the majority of students' own opinions, indicated improvement over 10 months. However, the lack of opportunities to use English in extra-curricular settings was associated with a lack of confidence and supported previous research emphasising the important link between cultural and linguistic knowledge and competence.

The findings prompt a discussion concerning where the responsibilities lie for international students' social well-being and concludes that these are shared among a variety of stakeholders. The discussion reflects debates in the higher education literature that describe conflicts between consumerist, managerial cultures and the liberal educational tradition to develop resourceful, independent learners.

The case study approach necessarily limits wider generalisation to other settings and, for this reason, the recommendations relate to the research site. However, where similarities in context exist, such as mono-national student cohorts or residential arrangements, then a degree of generalisation and applicability may be anticipated. Following the same logic, there is a place for future research to examine international students' uses of English in extra-curricular and academic settings in different disciplines and at undergraduate and doctoral levels.

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APPENDIX 1: INTRODUCTORY EMAIL TO STUDENTS

Dear *student's name*

We would like to introduce ourselves to you. We are researching how students whose first language is not English develop their English language skills, especially in speaking and writing. The research will help us to improve the English language support services Cranfield offers to current and future AVIC students. During your course, we will ask for your help with the project by inviting you to an interview or seeking your permission to sit in on some group project sessions. We hope that you will be willing to help us.

We will always ask for your consent and anything you say and do will be treated as confidential. Your name will not appear in any reports or publications so you cannot be identified. The research is not concerned with your academic progress on the course so we will not collect information about your marks.

We look forward to meeting you during the year. If you would like more information about the research, please contact either *GLJ* at *email address* or *CB* at *email address*.

Kind regards,

Circulated week commencing 29 March 2010

APPENDIX 2: INTERVIEW SCHEDULE

1. Why did you choose to take the taught (or research) Masters course at Cranfield?
2. How long have you been learning English?
3. What opportunities did you have to speak English in China? What opportunities did you have to write English in China?
4. Now speaking, reading, listening and writing English; what do you find easiest?
What do you find most difficult?
5. Why is it important for you to develop good English language?
6. What are the main challenges of studying in English for you?
 - a. Of reading in English
 - b. Of listening to English as in lectures?
 - c. Of speaking in English (eg in group work or seminars)?
 - d. Of pronouncing English
 - e. Of writing in English (assignments)
7. How many times have you presented at the group design project meetings? (*added 21.6.10*)
8. How many times have you met with your research supervisor? (*added 21.6.10*)
9. What are you doing to improve your English?
10. What helps to improve your English?
11. What opportunities do you have to practice English outside the classroom?
Can you give me an example?
12. Where are you living? Do you share a house? Who do you share it with?
13. Have you made friends with any English-speaking students? Have you been to the Student Union? Have you joined any student groups or societies?
14. Has your English improved since you started the course?

APPENDIX 3: INTERVIEW DATA: ANALYTIC FRAMEWORK

1. What age did they start to study English in China? How were they taught at secondary and tertiary levels? How was English proficiency assessed?
2. What opportunities did they have to use English in China a: at work and b: elsewhere? Describe in detail.
3. Describe the challenges students face in studying in English at Cranfield in terms of English language skills. Compare the answers of students on the taught and research courses. What are the similarities and differences between the two groups? Compare individual responses with their IELTS scores for agreement or discrepancy. Are there any differences in responses over time?
4. Outline the opportunities students have to use English a: on the Cranfield course and b: in extra-curricular contexts at Cranfield. Compare responses of students on the two courses and over time.
5. Describe the social/residential circumstances of the students and relate to items 4 and 5 above.
6. Do students consider their English has improved? If so, how and why? Compare the responses of students on both courses. Identify significant individual cases.
7. Where relevant, compile a log of time spent by students using English a. on the course and b. outside the course.
8. Standard of English speaking and pronunciation during the interview. Compare students on the two courses. Are students who are interviewed later more proficient at speaking and pronunciation?
9. Methodological issues such as the quality of interviewing. Log any 'double' or leading questions, complexity of language and examine for any impact upon the responses. Consider how the interviewer–interviewee relationship might affect the data? Is there any evidence for this?
10. Unexpected insights.
11. Finally, identify the main points emerging from the analysis.

APPENDIX 4: SECOND INTERVIEW SCHEDULE

1. Do you think your English has improved since coming to Cranfield?
2. How has it improved?
 - a. Listening
 - b. Speaking
 - c. Pronouncing
 - d. Reading
 - e. Writing
3. Why do you think your English has improved?
4. Do you have any difficulties using English?
5. Which English skills are you using on the course now, for instance,
 - a. Reading
 - b. Writing
 - c. Listening
 - d. Speaking
6. How much time are you spending using English on the course in a week?
7. Are you living with colleagues from the program?
8. When do you use English outside the course?
 - a. Talking to English speakers
 - b. Listening to TV/movies
 - c. Attending a weekly religious meeting
 - d. Any other occasions?
9. How much time are you spending using English outside the course in a week?
10. Have you made any friends with any non-Chinese students?
11. Do you use the CSA?
12. Do you use the sports hall?
13. What recommendations would you make to future AVIC students at Cranfield to improve their English?

APPENDIX 5: RESEARCH DIARY QUESTIONS

In the past 7 days, how much time (in hours/minutes) did you spend on the MSc course:

- a. Talking in English?
- b. Reading English?
- c. Writing English?
- d. Listening to English, as in lectures?

(Please include all lectures, classes, group design project meetings and meetings with your supervisors.)

In the past 7 days, how much time (in hours/minutes) did you spend outside the MSc course:

- a. Talking in English?
- b. Reading English?
- c. Writing English?
- d. Listening to English, as in watching TV?

APPENDIX 6: RESEARCH DIARY QUESTIONNAIRE

1. Please mark the correct statement below:

I am a MSc Research course student.

I am a MSc Taught course student

2. How many hours a day did you use English on your individual research project (thesis) last week? *(Include reading papers, listening, speaking with your supervisor and writing your thesis.)*

Please enter the answer here:

3. How many hours a day did you use English outside the MSc course last week? *(Include reading newspapers, listening to TV, radio and movies, speaking and writing.)*

Please enter the answer here:

4. Please rate your agreement with the statement below by marking the appropriate box

“I feel confident about writing/listening to/speaking/reading English.” *

Strongly agree	agree	Neither agree nor disagree	disagree	Strongly disagree
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Thank you for completing the questionnaire.

* this question varied each week according to the skill selected.

APPENDIX 7: QUESTIONNAIRE FOR SUPERVISORS OF MASTERS THESES

1. For how many years have you been supervising Masters theses?
2. For each statement, please rate the extent of your agreement or disagreement.
 - a. I always give feedback to my AVIC students about their English writing proficiency.
 - b. The English language proficiency of my AVIC students adversely affects my supervisory workload.
 - c. I am concerned about the standard of written English in the Masters theses of AVIC students.
3. When marking Masters theses, which of the following applies to you:
 - a. I ignore any problems with English language
 - b. If poor, I may deduct marks for poor English
 - c. I always deduct marks for poor English
 - d. Other – please specify.
4. If you wish, please provide any further information that you feel may be relevant.

Thank you for responding to the survey.

APPENDIX 8: SURVEY OF THESIS SUPERVISORS – OPEN RESPONSES

MScT Supervisor: English language capability is highly individualised and some students need more help than others

MScT Supervisor: I have not marked any thesis from a student that I have not supervised. As I ask my students for a draft of their thesis, I have the opportunity to advise them in subsequent viva where their intent is being obscured by their English.

MScT Supervisor: After the first 3 months, the English of AVIC students is sometimes better than students from Slavic countries. The presentations give them practice.

MScT Supervisor: Provided the information presented in the thesis is clear and unambiguous, then I do ignore the quality of the English language used.

MScR Supervisor: I have been supervising AVIC students for three years. There have been a few students whose English are very good, one in 2008, one in 2009. However, the majority of students are not good in English.

MSc Supervisor: I think most of the AVIC students take their English writing quality seriously.