

CENEX-FALE UFMG – EXAME DE PROFICIÊNCIA EM INGLÊS PARA PROCESSOS SELETIVOS DE PROGRAMAS DE PÓS-GRADUAÇÃO

ÁREA 4 – LINGUÍSTICA, LETRAS E ARTES

Bilingual Scientific Literacy? The Use of English in Swedish University Science Courses

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1. Background and aims

European higher education institutions are currently preparing for a major influx of exchange students. The reason for this is the recently signed Bologna declaration on harmonisation of European education, which promises freedom of movement for students from the 46 countries now involved in the process by 2010 (Bologna Process, 2007). At the same time, higher education institutions are also interested in attracting other cohorts of foreign students from, for example, Africa, India and Asia, for both financial and academic reasons. In many cases, one aspect of this preparation has involved adopting English as the default teaching language in a wide selection of courses. In this respect, the Nordic countries feature strongly, with recent surveys of European programmes taught through the medium of English showing only the Netherlands offering more student places on this type of course (Maiworm and Wächter, 2002; Wächter and Maiworm, 2008). At postgraduate level, for example, approximately half of the masters courses offered by Swedish higher education establishments in autumn 2007 were expected to be taught in English (Swedish National Agency for Higher Education, 2007). Even at undergraduate level many courses in Sweden are now taught exclusively in English. This is particularly true in natural sciences, engineering and medicine, where the majority of course literature has long been published in English, and where English is playing an increasingly dominant role as the de facto language of science (Ammon, 2001; Falk, 2001; Gunnarsson and Öhman, 1997).

Although the shift to teaching in English has often been welcomed by teachers and students, the research community is only beginning to understand the dynamics of these changes within the learning environment. One of the reasons for this is that there is very little research available into the effects on disciplinary learning in higher education when the language used to teach a course is changed in this way. Both Met and Lorenz (1997) and Duff (1997) have suggested that limitations in a second language may inhibit students' ability to explore abstract concepts in non-language subjects. However, even without the added complication of a second language, the language aspect of disciplinary learning is particularly problematic and complex. As Östman (1998) points out, a disciplinary language is abstract and represents special communicative traditions and assumptions. On a similar theme, Säljö (2000) argues that difficulties in student learning are in fact difficulties in handling and understanding highly specialised forms of communication which are not found to any great extent in everyday situations. Lemke (1990) has thus concluded that learning depends on the ability to understand the disciplinary language in which the knowledge is construed. In this respect Halliday and Martin (1993) have claimed that language itself is much more than a simple representation of disciplinary knowledge, it is actively engaged in bringing such knowledge into being. With so many writers pointing out the complex, non-trivial nature of the relationship between language and disciplinary learning, one might expect to find an extensive body of research into the subject— particularly with respect to changing the teaching language to English. Unfortunately, there is very little Nordic research that can inform the current language shift occurring in higher education.

A number of Nordic studies have examined the extent to which English is used in higher education and there are also studies of the effects of such teaching on language learning (e.g. Brandt and Schwach, 2005; Carroll-Boegh, 2005; Falk, 2001; Gunnarsson and Öhman, 1997; Hellekjaer and Westergaard, 2002; Höglén, 2002; Melander, 2005; Telemann, 1992; Tella, Räsänen and Vähäpassi, 1999; Wilson, 2002). However, studies relating to disciplinary learning in a second language are few in number—in fact, apart from our own work, we could only find two Swedish studies that could be said to have any bearing on the questions posed in this article. These two studies have examined the understanding of written text, both concluding that the ability to judge broad relevance is greatly reduced when text is in a second language (Karlgrén and Hansen, 2003; Söderlundh, 2004).

Even internationally there are only a small number of studies that have examined the effects of the teaching language on disciplinary learning in higher education. These international studies point to negative correlations between disciplinary learning and changing the teaching language to English (Gerber, Engelbrecht, Harding and Rogan, 2005; Klaassen, 2001; Neville-Barton and Barton, 2005; Vinke, 1995). However, in the most comprehensive of these studies Klaassen (2001) found that the negative effects on disciplinary learning disappeared over the period of a year. Klaassen concluded that the students in her study had adapted to the language switch, and suggested follow-up work to identify the mechanisms by which this adaptation may occur.

Until recently no Nordic research had been carried out into the relationship between the teaching language and disciplinary learning at tertiary level. This situation changed with the publication of the results of a Swedish study which examined the disciplinary learning of undergraduate physics students who were taught in both Swedish and English (Airey, 2006a, 2006b; Airey and Linder, 2006; 2007). Building on Klaassen's earlier experiences in the Netherlands, this study showed that, whilst on the whole students believed that the teaching language had little effect on their learning, the same students could witness to a number of significant differences in their learning when commenting on video footage of teaching situations. The differences found involved the amount of interaction in lectures (students asked and answered fewer questions when taught in English) and a greater focus on the process of note-taking in English-medium teaching at the expense of following the lecturer's line of reasoning. Importantly, the students in the study changed their learning strategies to cope with the language shift in a number of ways: some students read sections of work before lectures, whilst others no longer took notes in class. However, in some extreme cases lectures had simply become sessions for mechanical note taking with extra work needed to make sense of these notes later.

Valuable though the above research is for teachers faced with the day-to-day reality of teaching Swedish students through the medium of English, we would argue that the changes brought about by the push to internationalise Swedish higher education require much more than increased awareness of the ways such teaching can be experienced by students. The decision to use a particular language must also be justified from a pedagogical perspective. Unfortunately, in the present situation the decision to change the teaching language to English often has little to do with achieving specific disciplinary learning objectives. Writing in 2002, Carlson voiced the concerns still held by many in Swedish higher education about the effects of language shift on disciplinary learning:

At present there has been no systematic research into the way in which student learning is affected by the language used, but my gut feeling and that of many of my colleagues is that students gain less robust knowledge and poorer understanding if the language used is not their mother tongue. (Carlson, 2002: 15) (our translation)

In an attempt to improve the disciplinary language of their students, teachers at Uppsala University started a project named DiaNa (Dialogue for Natural Scientists). Here, the academic departments of chemistry, biology and earth science emphasise communication training as an integrated part of their programme courses (Uppsala universitet, 2001, 2007). Moreover, in an

attempt to redress what was seen as an imbalance between English and Swedish, Carlson and her colleagues also reduced the percentage of courses offered in English to third and fourth year biology students from approximately 70% to approximately 40%. All students now read at least one advanced course in Swedish. Although a movement back towards disciplinary Swedish seems to be a reasonable objective, Airey suggests that we would be well-advised pedagogically to focus on disciplinary learning objectives rather than the creation of general language policies:

[...] decisions [about the language of instruction] should be taken in order to better fulfil the aims of the syllabus, and not in order to solve temporary problems about what to do with a particular exchange student. This demands a structured approach, where the language of instruction is an integrated part of the overall strategy to produce well-educated graduates. (Airey, 2004: 104)

What we are suggesting, then, is a comprehensive rethink of the fundamental aims of undergraduate degree courses in order to acknowledge the language aspects involved in appropriate disciplinary learning. A similar conclusion was reached at a recent symposium on language policy in higher education held at Södertörn University, Sweden in 2006. The symposium brought together representatives from the Swedish National Agency for Higher Education, the Swedish Language Council, the Swedish Academy, the Swedish Student Union, the Swedish Research Council and the Parliamentary Working Group that drafted the 2002 report on language *Mål i mun* (Utbildningsdepartementet, 2002) and its 2005 follow-up report. At the symposium, concern was expressed about issues of diglossia (Ferguson, 1959)—a division of functions between languages—where English is the academic ‘high’ language and Swedish is the everyday ‘low’ language and domain losses 1 to English (Fishman, 1967) with the fear being that certain subject areas in society might become impossible to discuss in Swedish. There was also general agreement that both English and Swedish are needed in Swedish higher education, with the term parallel language use being adopted to describe the desired situation (see Josephson, 2005). However, questions about what the term parallel language use actually means and how it might be implemented remained largely unanswered.

We suggest that the first point to note when examining the term parallel language use is that its focus appears to be primarily on the educational system itself, i.e. the language used when educating students rather than the language competencies that we would like graduates to attain with respect to their subject of study. Clearly, the former is intended to imply the latter; however, we believe it is dangerous to assume that there is a one-to-one relationship between teaching and learning in this way. Thus, we prefer to reformulate the parallel language requirement, suggesting that each degree course should be analysed in terms of the desired combination of language-specific disciplinary skills that we would like to be attained within that course. Once this has been decided, the next step would then be to determine the appropriate combination of input and output that we hope would lead to these aims being achieved.

Fonte: <http://www.diva-portal.org/smash/get/diva2:114031/FULLTEXT01.pdf>

Acesso: Junho, 2015 (Texto adaptado).

Questões

1. O que comprova que os países nórdicos têm oferecido programas com a língua inglesa como meio de instrução? (sugestão: 7 linhas)
2. De acordo com os estudos internacionais, como a língua de instrução pode afetar a aprendizagem das disciplinas do ensino superior? (sugestão: 7 linhas)
3. O que disse Carlson (2002:15) e que preocupação esse autor espelha com suas palavras? (sugestão: 6 linhas)
4. Que sugestão feita pelos autores está de acordo com a conclusão alcançada no simpósio realizado na Södertörn University em 2006? (sugestão: 3 linhas)
5. Em que termos os autores propõem que se reformule o requisito da língua paralela? (sugestão: 5 linhas)