

## **The Role of External Speakers (working statisticians) in the Higher Education Statistics Classroom**

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### **Abstract**

Statistics is a deductive subject in which ideas build on each other as the teaching progresses. Although a session contributed by an external speaker may interrupt the teacher's flow, the benefits may make it well worthwhile. In this paper we explore the prevalence of external speakers in Higher Education statistics courses and in other subjects; seek the views of students, teachers and external speakers; consider the opportunities for contributed sessions in terms of content and consider the practice in the wider context of continuing professional development, alumni affairs and relations between business/industry and academia. Responses from practicing statisticians show that external speakers can be inspirational and be the pivotal cause for their choice of career and that most are happy to be external speakers. Students report benefit from listening to external speakers and particularly value senior professionals from larger companies. Administrative staff in alumni services would welcome greater input but agree with academics that external speaker quality needs to be vetted. Companies also welcome the opportunity to promote themselves and support staff interacting with academia. Being an active statistics consultancy/training unit within Newcastle University is helpful in accessing working statisticians who can be relied upon as high quality external speakers.

**Keywords:** Alumni, Conjoint Analysis, Continuing Professional Development

### **1. Introduction**

The interplay between business, industry and academia is ever more important now that universities are economically challenged and nationalized companies who previously would fund academia to help bridge the gap between theory and practice are now too concerned with their bottom line to aspire to fulfill such an altruistic function. At the same time employers wish to show that they are community aware and employees are being required to show their commitment to the job by taking part in continuing professional development (CPD). A potential win-win solution is feasible in that companies can show their community spirit by encouraging employees to carry out CPD by interacting with students in academia. The issues surrounding this exchange are explored in this paper. External speakers who are working statisticians can bring breadth and depth to teaching as well as expanding the students' knowledge of possible careers. Various information gathering exercises are described in the methods section, followed by the results of the inquiries and a discussion of how the benefits can be progressed and what future work needs to be done.

### **2. Methods**

There are many stakeholders in the process of educating people to advance the gross domestic product of a country. It requires long term commitment and improvement of companies and staff, inspirational teaching and enthusiastic lecturers. An ideal opportunity for interplay between work and academia is available during the undergraduate years of study and one promising vehicle is external speakers.

Information for this study was obtained by interviews with lecturers from Newcastle and other Universities; questionnaires, observation and interviews with external speakers in a Newcastle University (NU) module on customer relations management (CRM); questionnaire and conjoint analysis of students receiving an external speaker and input from careers, alumni associations and administrative staff from different parts of NU. A request for views was broadcast via the teaching-statistics list. A range of viewpoints was obtained from the following perspectives:

**Prevalence.**

To learn about the prevalence of external speakers in Higher Education statistics courses, members of the Royal Statistical Society (RSS) Quality Improvement Section were asked about their experiences as were lecturers in the School of Mathematics and Statistics, and Business Studies at NU. For a wider perspective, officers in the European Network of Business and Industrial Statistics, RSS and Mathematics in Education and Industry (MEI) were also interviewed.

**External speaker perspective.**

In addition to input from the prevalence interviews, four external speakers on the CRM module were interviewed to understand the process from their point of view.

**Employer perspective.**

Company managers were interviewed to understand the company viewpoint and how keen they would be to allow staff to undertake CPD in this way.

**Administrative view.**

To learn about the establishment view, interviews were conducted with staff from careers, legal and alumni services.

**Student perspective.**

Finally students were asked about their views on external speakers. Some key factors emerged from the discussions and a conjoint analysis exercise was carried out to explore these issues: do students prefer to have an external speaker who is senior or early in their career? Do students prefer an external speaker from a large company or a small to medium enterprise? Do students prefer to have a talk describing a data analytic project or a more general talk about CRM? The students and external speakers were also asked their views on timing and timescale within a course.

### **3. Results**

**Prevalence.**

From the people interviewed it seemed uncommon to have external speakers within modules in Mathematics and Statistics although special seminars may be added to address careers or other areas. Reasons given included that some colleagues do not like to spend time on non-core activities even though they relate to methods and to what the students will do when they graduate, and that some students do not want to “waste” time on non-exam activities and can even be quite hostile. One particular issue raised for the lack of external speakers is that the statistical content of applications in business and industry is worryingly low. Another issue raised is that the quality of external speakers can be poor:

“The only issue I am aware of is that the quality of speakers can be variable and so they generally only use speakers that we have either seen in action or have a good recommendation for. Otherwise there's a risk that the speaker can do more harm than good by putting off learners.”

From the perspective of the University it is noted that departmental staff are not so interested in encouraging alumni relations, rather it is more the central administration that sees them as a source of money. National Student Survey scores are the most important thing to lecturers at the moment. The enthusiasm for external speakers is probably related to the prestige of the University and how hard they have to try to attract students and to help them into employment at the end of their studies.

Although the people interviewed are not averse to the idea of external speakers, they noted it would be unusual in Pure Mathematics to find someone external who could contribute - perhaps a research visitor, but the context would need to be clear. They raised concerns about the abilities of external speakers to engage and relate to students. Some examples of concerns that were expressed were the following. Having different lecture styles upsets some of the students particularly if English is not their main language. A change in style can be refreshing but it may take time to tune into the accents and standpoint and attitude. Lecturers need patience when listening to students questions and patience in answering them. These are skills which external speakers may not have; the Universities could help them acquire them.

The MEI is a charitable body that offers a lot of mathematical activities and is generally pleased with the uptake. However, company uptake varies with the larger employers who are confident of attracting good graduates having less need to be involved except to show their community spirit. Companies are often more enthusiastic about providing input to academia than in accepting help from academia. As one MEI promotions manager said:

“In fact I sometimes find that when I want to engage an employer in discussing the provision of education for their staff they steer the conversation towards how their organisation can help education, which can be a bit frustrating for me!”

For example, only 25% of companies used universities as training providers (Learning to grow, 2012). Two-way communication is perhaps best facilitated via a web presence, for example the MEI exemplars (n.d.) and RSS CPD profiles (n.d.).

#### **External speaker perspective.**

Being an active statistics consultancy/training unit within NU is helpful in accessing working statisticians who can be relied upon as high quality external speakers. The external speakers were generally enthusiastic about the experience. Most found it enjoyable to talk about their subject. Asked whether it was stimulating, one response was: “Yes - it's a great buzz - and you know that you'll have a large audience.”

Most found it a worthwhile experience that featured in their performance review and that they added to their curriculum vitae. Some felt it was an honour to be asked to speak to students about their special interests. One commented that: “It forced me to think about what I do from another person's perspective and this helps me to understand what I do better and think about it in new ways.”

Asked if it helped their career, one external speaker said

“Well it certainly is a great recognition in my view and it helps you to speak with different audiences from varied backgrounds. I find this part quite challenging especially when you have people from manufacturing, service and pure public sector participants in the same class. “

However, one speaker found it more stressful than stimulating saying:

“Presentations do require quite a bit of preparation so on reflection the time invested for just a one-off talk was probably disproportionate to any tangible benefits, especially given the audience (e.g. opportunity for networking, increase in profile). But at the time, and given my relative inexperience of public speaking, it was good practice for me.”

Another negative view was: “If it is delivered to undergraduate students with no

interaction, it can be boring at times.....". Asked if the students benefitted from having an external speaker, one response was: "I think they enjoyed it. They liked being able to ask about my business."

Asked whether second year of three year undergraduate course is appropriate one said:

"Undergraduate 2nd year seems very soon, for better & worse. Positive: they could get a feel for the applied side of statistics, which gives motivation for their studies. Negative: maybe too early, confusing."

Another plus for the external is "it's a good way for lecturers to learn teaching methods from each other, we tend to be isolated."

### **Employer perspective.**

Employers like their staff to be external speakers as it is an opportunity to promote their company and their careers, and it is also an altruistic gesture. Stemnet (Stem ambassadors, n.d.) facilitates external speakers to schools although some schools are slow to use them. Employees prefer to speak within a module than in a separate session as they are then assured a more plentiful audience. One employee noted that:

"The company is keen on training. Most people in the department have a study day per week. The company will benefit from me being a better presenter and communicator which is good for the business. It's probably better than going on a training course or to a business conference. It is action learning."

Most employers would support their staff if they wanted to give an external presentation but would not necessarily count it as CPD as such. The Chartered Scientist CPD categories are: professional activity; self-directed learning; work based learning; formal/educational and other. One statistician noted:

"I have been a guest speaker but not at a university. I would like to speak to students at universities and I would regard this as a CPD activity if it was more of an educational lecture rather than a presentation."

NU collects data on destination of leavers (Newcastle University, n.d.) and contributes them to national statistics (Higher Education Statistics, n.d.). In 2011, 17% of Mathematics and Statistics leavers went into further study and 6% of Business Studies. In a survey of 542 employers in the UK (Learning to grow, 2012), the quality of careers advice for young people was considered not good enough and over half of the employers were willing to do more to help.

### **Administrative viewpoint.**

Legally the university does not have a problem with externals being invited as one-off visiting speakers, possibly because it is at a low level of occurrence. Alumni relations staff said they are not involved with the front line and do not engage people with lecturers and their modules as such. They introduce alumni where they can with a view to them supporting the University through lectures, and occasionally working with students but their role is purely that of the initial introduction/facilitation. There appears to be no definitive data set on business relations across the University although there are numerous agencies within the University who have contact with external businesses. However, generally there is not much enthusiasm to share information in case, for example a good working relationship is jeopardized by multiple contacts or misunderstanding. There is no formal brochure or electronic list of potential alumni speakers and in fact there was not a great take up last year and the guest speakers to date have not been surveyed so there is no data about how alumni

speakers, students or lecturers felt about the alumni being involved.

**Student perspective.**

The main results of interest from student questionnaires are shown in Figure 1.

Questions	Responses (n=24)
Did you find the talk enjoyable:	Yes: 19; No: 5
The talk added value to the module:	Yes: 18; No: 6
Did the external speaker break the flow of module:	Yes: 3; No: 21
How was the complexity of the talk:	OK: 19; Not OK: 5
Did you benefit from listening to the talk:	Yes: 16; No: 8
Is presentation style more important than content:	Yes: 9; No: 15
How was the length of the presentation:	OK: 17; Prefer longer: 2; Prefer shorter: 4
If the usual lecturer costs £100 ph, how much would you pay the speaker:	£100 or more: 8; Less than £100: 15
Did the external speaker inspire you to give a talk yourself:	Yes: 15; No: 5

Figure 1. Main results from student questionnaires

Students’ rank order for type of speaker was: professional with 10+ years of experience, then professional with 5 years of experience and professional in an Institute, then professional at start of career and lecturer from another university, then last of all PhD students.

Students’ rank relevance for talks was: increase depth of knowledge, then opportunities to hear a different view and career help, then learn about different applications and lastly for a change in lecturer style.

Conjoint analysis reinforced the questionnaire showing that senior speakers from large companies were preferable and subject matter was not so important (Figure 2).

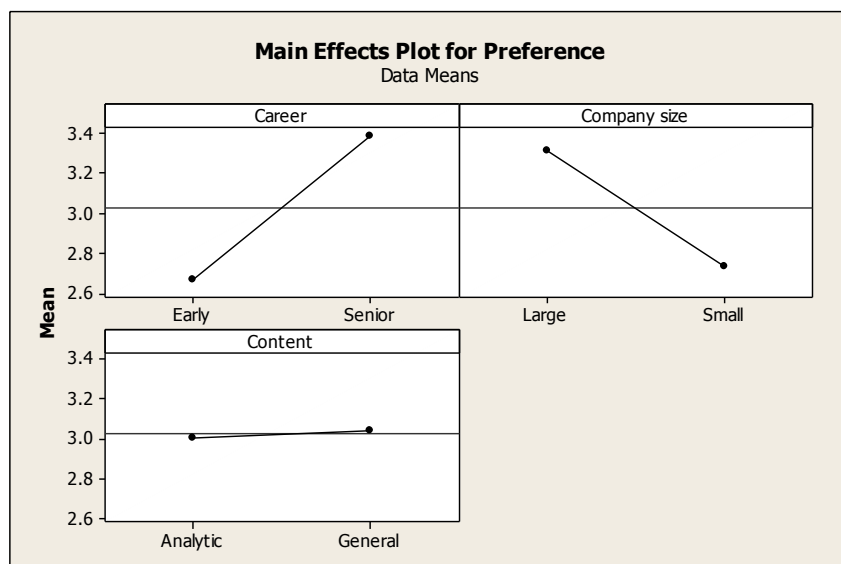


Figure 2. Main effects of conjoint analysis questions

Some past students were very complimentary about inspirational external speakers they had encountered, saying that they were pivotal in their subsequent career choice. One comment was:

“When doing my MSc we had a talk from Doug Altman. Everybody enjoyed it a great deal. He is quite a charismatic speaker but what I think made it special was that he exploded the myth that journals are full of high quality stats. He had a lot of examples of poor practice which spurred us on to make things better! I think that the reality of dealing with complex and dirty data, and working with colleagues who don't really know what they are trying to research, is an interesting insight for students too - and I don't think it necessarily puts them off their intended path.”

#### 4. Discussion, Conclusions and Future work

It seems that external speakers get a lot out of addressing students and the students are generally pleased to have the talks. Students reported benefit from listening to the external speakers and particularly value senior professionals from larger companies. Employers are pleased to interact with academia and to have outlets for CPD activities but do not actively pursue these opportunities. RSS accreditation respects external speaking as a CPD activity and categorizes it as professional development.

It is one of many careers activities and employees prefer to speak within a course as it ensures a larger audience than an optional company visit. Many academics don't want to dilute their teaching with externals and merely pay lip service to the need for employability skills. There is not a strong urge to bring the two worlds of academia and business closer together via the actual teaching even though only 17% of students stay in academia and the rest go out into the world.

Responses from practicing statisticians show that external speakers can be inspirational and be the pivotal cause for the choice of career. This is clearly a valuable outcome from the external presentation.

Administrative staff in alumni services would welcome greater input but agree with academics that speaker quality needs to be vetted. Being an active statistics consultancy/training unit within NU is helpful in accessing working statisticians who can be relied upon as high quality external speakers.

Many professional societies rely on volunteers to be active in their committees. Employers may be reluctant to encourage staff to make a long-term commitment by being in committees, but may be willing for them to offer a talk as and when they are available. It may be that the way forward is to focus on encouraging practitioners to contribute to a web presence, for example via the RSS profiles and MEI exemplars.

The possibility of linking external presentations with government initiatives such as knowledge transfer schemes and the award of Chartered Statistician (CStat) could be considered further. A key question is whether there is scope to increase the importance given to guest external speaking, as it is an activity that is mutually beneficial to speakers, companies and students.

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