Preparing for multi-disciplinary undergraduate research conferences

Introduction

Previous Directions articles have provided excellent guidance for geography students preparing and delivering lecture style and poster presentations in class (see Hay, 1994; Vujakovic, 1995; Young, 1998). These presentations to tutors and classmates are often part of formal assignments. However, there are increasing opportunities for undergraduate geographers to present their research at institutional and national student research conferences. These events are like any academic conference, except the presentations are given by students who report on research carried out within their taught courses, or during internships, placements and voluntary work. Because the presentations are not linked to assessment, presenters are freer to express their identity and argument (Walkington et al., 2017).

National undergraduate research conferences have been commonplace in the US for many years e.g. the National Conference on Undergraduate Research (NCUR), and are becoming more frequent elsewhere. The more established of these include the British Conference of Undergraduate Research (BCUR), Australasian Conference of Undergraduate Research (ACUR) and the International Conference of Undergraduate Research (ICUR). Alongside national conferences many universities hold their own events, which are often institution-wide, so as to appeal to a large proportion of their student body. These multi-disciplinary 'public' conferences offer students broader experiences than class-based, subject-level presentations, and motivations to participate will be different i.e. based on professional and personal development, forging research contacts, and enhancing employability, rather than securing assessment grades.

This is the first of two articles that offer guidance to help you maximize the benefits from participating in multi-disciplinary conferences. In this paper, we explain why you might wish to participate, identify the usual conference format and preparation process, and talk you through the steps you should take to prepare an effective verbal or poster presentation. While much of the content of this article derives from the considerable collective experience of the authors in their roles as convenors of such conferences, and supporting and mentoring students before and during their conference experiences, it also includes reflections from student participants of BCUR conferences over a three year period (Hill & Walkington, 2016a; Kneale et al., 2016; Walkington et al., 2017).

Benefits of conference participation

Attending an undergraduate research conference will show you a range of presentations styles and practices, some that would suit you and some better avoided. Through more active participation, by

presenting your own research, you will develop your expertise (Hill & Walkington, 2016a, b; Kneale et al., 2016). You will hone your communication skills, including specific aspects of verbal delivery such as selecting and organising material to convey your core message, adjusting your pacing and fluency, and maintaining eye contact with the audience. In a multi-disciplinary environment, you will develop more conceptually advanced communication skills such as how to repurpose your work so it can be understood by a diverse audience. You will have to carefully define key terms as the language of your discipline will not be understood by peers from other disciplines. You will learn the value of preparing, rehearsing, seeking feedback, and subsequently refining your poster or verbal presentation. This process improves your time management skills and helps you to achieve a greater sense of independence and self-confidence. Learning by talking to your peers about your research will encourage you to think more deeply, enhancing your problem-solving skills and developing a tolerance of uncertainty. Students attending BCUR have highlighted the development of these skills through their conference participation (Table 1).

The skills you develop from preparing and presenting your research, networking with peers and staff, and being fully immersed within an institutional or national conference environment can be added to your CV, along with the title of your talk or poster, and this all enhances your employability. The conference is likely to involve you stepping beyond your comfort zone, which is challenging, but remember that everyone else is just as nervous as you. If you follow the advice in these Directions, you will find that conferences can be transformative, offering you a 'threshold' experience that redefines your understanding and expectations, increases your self-confidence, and eases your transition to professional life (Walkington et al., 2017).

Understanding the conference process

The build-up to a conference can be broken down into a series of steps (Figure 1). First, following a public advert, you will submit your abstract (a short summary of the paper you want to present). Ensure you follow the abstract submission guidelines in terms of content, word length (usually 200-300 words) and additional information. The usual aim of an abstract is to define the problem and why people should care, explain your approach and key results, and state your conclusions. Your abstract will be assessed by a conference panel and there might be limited spaces to present so, if your abstract is unclear, incorrectly formatted, or submitted after the deadline, it might be rejected. Your abstract is important because conference delegates will read it to decide if they wish to come and see you present, and it will usually be published in the conference programme. Take your time, as a good abstract is not written in just a few minutes. Once your abstract is accepted, prepare your material and refine it by gaining feedback. Designing quality posters and verbal presentations can be challenging

and, if not well considered, can leave your audience confused and disengaged with your work. You need to feel confident and ready to present at a conference and ideally you should reflect on your performance at the end of the event to improve ready for your next conference.

[Insert Figure 1 about here]

Presentation formats at undergraduate research conferences

The majority of undergraduate research conferences offer you a choice between poster and verbal presentations. With poster presentations you are allocated a time to stand by your work to present your research and answer questions while delegates circulate. So your audience changes, and you can tailor your talk to their interests. For verbal papers, you deliver your work in a traditional lecture format in scheduled sessions, usually comprising three or four separate papers, although some science conferences will have more, shorter papers. Deciding which format you prefer is an important decision to make early in the process, usually at the abstract submission stage. The format you choose will influence the preparation and delivery style of your work. For example, poster presentations should have enough information to be understood by someone unfamiliar with your subject material, as they can be viewed while you are not present. Ask yourself: 'Does my poster stand alone? Is it pitched at a level which my target audience can understand without further explanation from me?' By contrast, lecture slides are unlikely to be viewed without your commentary, so you can include more complex content.

Conferences afford you the opportunity to present work individually, with your classmates, or with academic staff (for example your supervisor/tutor). When submitting your abstract and presenting your work at conference, it is important that all the authors are properly acknowledged. If not, they may be missed out of conference programmes and published schedules. Acknowledgement of different levels of input is usually achieved through the order of authorship. When presenting with staff at undergraduate conferences it is usual for the student to be the lead author as they are presenting their research as part of a bigger project.

Planning your conference presentation

As an undergraduate student you always have competing demands on your time. Nevertheless, it can't be stressed enough how important it is that you start planning your verbal presentation or poster as early as possible. We suggest you work backwards from the presentation date, creating a timeline to organise your tasks. Re-read your research, draft key content, design your slides or poster, practice

your talk to get your timing right, show your poster or slides to your peers and supervisor for comment, and practice again (and again).

You don't need a completed project in order to take part. Institutional and national undergraduate research conferences offer the space to present research in progress. Explaining your rationale, aims, methods and preliminary findings is normal, although some presenters will have completed projects. Many academics also use conferences to showcase ongoing work and to seek feedback from delegates. This is a key difference between conference events and other publication formats, such as journal articles, where the research process must be fully completed and reflected upon before it is made public.

Considering your audience

When preparing to present your work think carefully about your audience. Expect the audience to be mainly students, with some academic staff, from a very broad spectrum of disciplines. They are likely to look particularly at the context of your research and your methods, considering any potential overlaps or connections with their own subject area and projects. They will also be interested in your delivery style, using it to improve their own presentations.

While the broad mix of subjects makes multi-disciplinary events interesting, and can open your eyes to new ideas and ways of working, it also creates a significant challenge for how you use your disciplinary language. When you present to peers and staff within your subject, you tend to assume a common understanding of key terms. However, when presenting at conferences where audience members can be from any background, you cannot assume prior understanding of your research topic, or even your discipline. When the issue of language was discussed with students at BCUR, many said that with hindsight, considering the interdisciplinary nature of the audience, they would have practised '*a less scientific talk*'. Where possible, you should remove challenging terminology, translating it into 'layman terms' so that the audience can follow your narrative. If the removal of key terminology is not possible, ensure you take the time to define and explain your terms.

Organising your presentation content

Any conference presentation requires you to organise material in a well-structured and accessible way. In short, you must craft a clear narrative. Most research can be broken down into a series of steps, and if you follow these steps when preparing your poster or verbal presentation you should develop a logical and coherent product (Hill & Walkington, 2016b). The starting point is to define your research problem, establishing the overall aim or intent of your research. You do this by introducing your topic,

setting the context using existing literature and then identifying the gap in knowledge you are trying to address. Several resources have been published to help you conduct a literature review and identify research questions (see Healey & Healey, 2016; Rewhorn, 2017).

Once you have outlined the context and rationale for your research you should discuss your methodology. This includes the design of your sampling framework, selection of appropriate methods to collect empirical data (primary and/or secondary data) and techniques for data analysis (qualitative and/or quantitative). However you have collected and analysed your data, it is important that you explain and defend this in your presentation.

With your methods defined, you are ready to present your key findings and to interpret your data in the light of your research aim. Finally, discuss what your results mean for your field and society in general. Audience members will not want to know every small detail of your analysis, but they will be interested in the impact of your work. In other words, consider your 'take-home' message.

Preparing verbal presentations

It is likely that your verbal presentation slot will be no more than 15 minutes long, usually with a further 5 minutes for questions from the audience. Presenting requires mastery of time management – your presentation must be well organised to fit into the allocated time. It is rare that you will have the time to say all that you want to about your research. It is therefore just as important to consider what to omit from your talk as it is to decide what to include. The most difficult part of any oral presentation is the introduction, this is when you must capture the attention of the audience. Begin with an opening slide that presents a clear research title and states your name. Include your departmental or institutional affiliation and email address. It is a good idea to follow this slide with an outline of your talk, setting out its content to provide a handrail through the information. At the close, include a slide asking if there are any questions from the audience. You may also want to display a final slide of references included in the presentation.

The appearance of your slides, if you're using Powerpoint, Prezzi, Keynote or similar, is secondary to the content and should be dealt with once you are happy with your argument. It is all too easy to get carried away with the visual aspect of a presentation and, before you know it, the conference is upon you and you have some slick-looking slides, but no idea how to deliver them! Although these undergraduate conferences generally mimic professional academic conferences, there is perhaps less emphasis on needing to impress with error-free delivery, and more of a focus on gaining confidence in public speaking and developing the ability to explain your research clearly and concisely. This is not to

say that the visual and delivery elements of your presentations can be neglected. If you can master substance and style, then so much the better.

As you prepare your slides, think about the balance of text, images and graphics. The text and visuals on your slides should be readable from the back of the room. Do not overcrowd slides. For example, it would be better to show a large, clear graph which you explain, rather than trying to fit both the graph and textual description on the same slide. Generally, you should use a consistent background colour, font and graphic style throughout. It is also common to include video/audio clips in presentations (Cryer, 2006). When used effectively, these can help you communicate complex ideas to the audience. However, do not include such media without good reason as they can appear as a 'gimmick', and can take up a lot of your presentation time.

Preparing poster presentations

Poster presentations are a brilliant way of talking about your research with a small number of people. You are assigned times to stand by your poster to talk about your research with circulating delegates. You will be enthusiastic, and it is really friendly. People can ask very obvious and sometimes unpredictable questions. However, you are the expert, you did the research, so you have a sound knowledge of your project. The dialogue that emerges from 'defending' your poster to a diversity of audience members, particularly non-specialists, offers you an important method of enhancing your graduate competencies. The conversations can also lead you to more ideas about what to do next, compared with a lecture-style presentation where the interaction opportunities are more limited.

In creating your poster your aim is to make it easy for a person unfamiliar with your research to understand it and to want to find out more about it. Generally, aim for simplicity and impact. Because of the need to balance a range of visuals with written material, posters only usually contain around 500 words of text. There is no room for waffle (Kneale, 2011). One of the key challenges to the BCUR students we interviewed was the reduction of a 10,000 word independent research dissertation onto a single poster. The ability to do this in a way that offers the reader a clear, understandable summary of a potentially complex and unfamiliar research topic was identified as one of the most important skills gained from the conference.

Once you have decided what should be included in the text, consider the arrangement and overall design of your poster. Check the presentation guidelines on the conference website. These often just tell you about size and orientation, usually A0 or A1 portrait or landscape. At the top of your poster your title will attract delegates' attention. It is best to have a short and eye-catching title that will

appeal to someone outside your subject area, while nevertheless clearly describing your research. Conferences often have a catalogue of authors and titles and people will search for research based on titles that interest them. Put your name, departmental or institutional affiliation and contact email under the title. In your main poster text, write clearly and accurately. Use scientific language to minimise ambiguity but define subject-specific terms on first mention. Remember that your poster is a scholarly document so the text needs to be referenced appropriately using a standardised style.

A common way to arrange a poster is have coherent blocks of text that are readily distinguishable and logically ordered so that the viewer's eye naturally follows the flow of information. These components can be balanced with images and blank space so your poster does not appear cluttered. Images, figures and tables will be more likely to attract delegates rather than blocks of text, so they should be simple and clear. Any images you include in your poster should be relevant to your argument, labelled and, if they are not your own, should be appropriately referenced. You should have permission to use them or they should have been obtained under an open commons licence. As with verbal presentations you should consider the background style. The safest option is to use a pale coloured background so it does not dominate the poster. If you do decide to use a photograph or similar, significantly lower the transparency so that the main text and smaller graphics are still easily readable.

Rehearsing and gaining feedback on your presentations

We cannot stress enough how important it is to rehearse and gain feedback on your work as you prepare for your conference. First, practice your presentation, out loud on your own, to check the timing and flow. Then, rehearse it in front of your friends to test the accessibility of your argument and to gain constructive help. Rehearsing in front of peers or tutors can help you to improve the content and delivery of your presentation. Rehearsing will help you to feel confident and relaxed as you stand up to present (Kneale, 2011). You can also brainstorm and practice the answers to the questions that may be asked at the close of your talk.

Show your draft poster to your friends before you print it out. You may have looked at your work so many times that you miss some obvious errors. Other people can highlight elements that are missing or areas of confusion where you have not explained something simply enough (especially if your peer reviewer is from outside your subject). It would be advisable to ask your project tutor to comment as well. It may take half a dozen or more drafts before you are totally satisfied with a final version of your poster.

If you are attending a conference that runs over several days, a final read-through of your work during the event will be useful. By then, you will have a taste of the conference and a feel for the breadth and depth of the delegates' knowledge and the general style of the sessions. This is especially helpful if you are delivering a verbal presentation that can be revised right up to the time of presentation.

Conclusion

The preparation of your poster or verbal paper is crucial to its success. In summary:

- The sooner you start preparing, the better your poster/paper will be;
- Keep it simple – strive for simplicity;
- Privilege substance over style;
- Be consistent and deliberate in your colour, design and font choices;
- Leave time to practice and take on board feedback from peers and tutors;
- Know your audience, and tailor your language, content and delivery appropriately.

You are now ready to attend the conference! Our second Directions article explains how you can get the most out of your undergraduate research conference experience.

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Table 1. Skills developed by students presenting at the British Conference of Undergraduate Research

Skill developed	**Student testimony**
Summarizing research content	'I found after doing a dissertation, condensing 16,000 words onto a side of A1 was quite challenging, but also I think it really makes you own your research, because you can't abbreviate that much without really having a firm understanding of what you're talking about'
Clarifying geography-specific terminology	'In the geography department, because we're all doing the same discipline, you can talk in the same way and they understand but it's quite difficult to speak to say a medical student or someone from English because they don't understand the specific terminologies'
Self-regulation and learner autonomy	'Going through the process from doing your research to presenting it is the missing link at university when you're a student because you just do your work and get your mark back and then you never look at it again … Here there's the cycle of doing your research, you get your work back and then you can reflect on it and represent it'
Learning from peer Dialogue	'You can be asked a question and it can put you off kilter and then you have to think on your feet a bit which is quite a good experience. There's a difference between that and being in a classroom because it's more of a controlled environment'

Figure legends

Figure 1. The conference process