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From Posters to e-Posters: The Evolution of a Genre

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There is plenty of informative material on the production and presentation of academic posters. Tips for firsttime poster presenters can easily be found online, in an informal easy-to-read style, very much resembling that of poster sessions. More sophisticated how-to tips and techniques are also available, along with discussions on how to use posters for professional development in the workplace or as a teaching and evaluation device within university courses. In recent years several disciplines have developed new ways to facilitate poster presentations and discussions using projections followed by two-three minute oral presentations, online sessions, digital interactive poster presentations, virtual science fairs and tele-conferencing. The present paper offers an overview and discussion of the literature available on academic posters, highlighting the positive as well as the negative aspects of this genre. It also seeks to describe how posters are changing/evolving through technology, in the light of recent research on new forms of oral presentation.

1. Introduction

In almost every discipline students or young researchers are likely, sooner or later, to face the challenge of presenting their research via an academic poster. Poster sessions often attract mixed reviews due to their physical constraints and because they are considered less prestigious than paper sessions (Swales & Feak 2000; Swales 2004). However, posters do play an important part in conferences, enabling academics to display not only their completed research work, but also (and most interestingly) ongoing research and preliminary findings that would not be publicised in a paper session. This makes poster sessions an interesting, engaging event for participants and a valid alternative to other, more sophisticated genres.

Unlike more established academic genres, the poster tends to change rapidly with technology, due to its multimodal nature. As this multimodal genre becomes more complex, it forces presenters to learn new skills in order to communicate effectively. The present paper describes how technology is affecting the interactional dimension of posters, their communicative purpose and textual construction, as well as the role of the audience and presenter. To illustrate such changes a sample of traditional poster presentations in psychology, law and physics will be contrasted with recent e-posters presented at a number of medical conferences.

1.1. Conference presentations

The academic conference is a remarkably rich arena for showcasing one's findings, practising one's oratorial skills or simply engaging in academic discourse as listeners (Shalom 2002). Conference presentations (CPs) cannot be separated from the broader conference experience, which "involves the travel to and from the venue, the meeting of old friends and the making of new acquaintances, the plenaries, receptions, and book exhibits, and the intangibles of the conference 'buzz' – its taut intellectual atmosphere, its rush from one talk to another, its gossip, its job interviews, its hot topics, and its 'in' people" (Swales 2004: 197). Although research into the discoursal nature of CPs was pioneered by Dubois (1985), most of the literature dates from the late 1990s, as the genre was investigated in a variety of disciplines,

such as applied linguistics (Luukka 1996; Shalom 2002; Thompson 2002), automotive engineering (Räisänen 1999, 2002), geology, medicine and physics (Rowley-Jolivet 1999), history (Ventola 2002), physics (Thompson 2002), and medicine (Webber 2002).

One notable feature of this research is the considerable attention paid to the complex multimodal semiotics of modern CPs, especially in technical, medical and scientific arenas. Dubois (1985) was the first to highlight the prominent role of visuals, which have become a major area of enquiry, alongside other nonverbal aspects of conference presentations. Rowley-Jolivet (1999: 134), who investigated CPs in petrology, oncology and physics at European conferences, observes that:

Between the lab or field, and the written genres of science, however, lies the relatively unexplored genre of the conference presentation [...]. In the scientific presentation, whatever the discipline, the visual channel of communication is a major resource for meaning making: visuals are omnipresent throughout the talks given, with slides or transparencies being continuously projected onto the screen during the speaker's monologue. Any investigation of how the conference presentation genre makes and communicates meaning must therefore address its visual dimension.

In certain human sciences, such as applied linguistics, history or philosophy, the role of visuals may be minimal (Swales 2004), but across much of the disciplinary spectrum conference presenters are expected to provide some kind of visual support, whether in the form of a PPT, a poster or a simple handout. Rowley-Jolivet's (1999) corpus of 90 videotaped CPs employ visuals pervasively, with an average of one every 50 seconds. Given the limited time allotted to CPs, the idea that "a picture is worth a thousand words" (Swales 2004: 199) clearly comes to the fore. Although Swales (2004) recognises that different disciplinary fields employ (and come to expect) different kinds of visuals, it is not yet clear whether the verbal commentaries accompanying the visuals differ markedly across disciplines.

A second strand of research has investigated the *intermediate* status of CPs, which stand somewhere between the research itself and its final outcome (the research article). Commenting on her biology CPs, Dubois observes that "one glimpses research as it is actually conducted, before it is sanitized to present a picture of straight-line progress toward public knowledge" (1985: 143). Rowley-Jolivet later reinforced the idea, stating that CPs "open a window, so to speak, onto the nature of scientific activity before its formulation in the discourse conventions of the research article, enabling one to draw a more precise topography of the 'work' accomplished by the latter" (1999: 188). During this process, listeners may be "drawn into the presenters' worlds as they narrate unexpected problems, reveal various kinds of ad-hocery with materials and methods, and admit to the contingent nature of the research process itself (Swales 2004: 200).

1.2. Verbal and non-verbal aspects

The poster presentation is a type of CP that relies heavily on visuals. Like PPTs, posters display text and iconic content in such a way that enables viewers to 'look into' the research of a colleague, with the freedom to read a poster at their own speed, to linger on a specific aspect (e.g. a table, graph or picture) and finally to engage with the author in a face-to-face discussion. The poster session is therefore an arena within the conference arena.

Although academics generally view posters as a less intimidating and demanding genre than papers, poster presenters are equally expected to showcase their knowledge and defend their work. What changes is the type of interaction a poster presenter has with his/her audience: each person approaching the poster presenter tends to establish a relationship that is undeniably closer and less intimidating than that observed at a paper presentation. However, the opportunity to interact personally with members of the audience (with no other time limitation than the beginning and the end of the poster session itself), means that the number of questions and comments is potentially very high. This increases the likelihood of being posed problematic or challenging questions. While paper presenters have 5-10 minutes for questions, poster presenters may have to remain available for 1-2 hours at a time, sometimes even longer.

As mentioned earlier, the audience associated with poster presentations is smaller and less formal, so that the presenter can engage in longer discussions, admit mistakes or doubts, ask questions and receive answers from the viewers, and even engage in socialising and networking. This is where the presenter's speaking skills and the soundness of his/her research can be safely tested. Junior researchers can learn by trial and error, within an informal setting, to slowly build up their academic persona.

De Simone et al. (2001) have noted, however, that poster presentations may leave the audience and presenter with a sense of frustration and incompleteness. This point of view is probably due to the fact that individual posters tend to attract a limited number of viewers. At most poster sessions, people casually stroll by, glancing at posters and picking only a handful to read carefully. At paper presentations, instead, speakers have the full attention of their audience, who choose to be present and (normally) sit through the whole session. As poster presenters do not have the advantage of a committed audience, they have to compete for space, visibility and attention, accepting the fact that for most viewers the interaction will be brief and superficial.

2. How the genre is evolving

To make posters more effective and minimise their drawbacks, several disciplines have introduced changes that seek to make poster sessions a broader, more appealing experience, making the most of the genre's multimodal nature. Physics, biology, law and medicine have been particularly active in this direction, as highlighted by MacIntosh-Murray (2007), using poster projections followed by short oral presentations, online poster sessions and virtual science fairs with online conferencing. A new system for presenting posters called 'digital interactive poster presentation' (DIPP) has been proposed by De Simone et al. (2001):

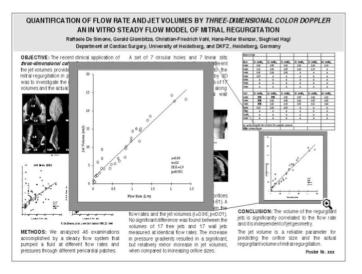


Figure 1. Screenshot of a digital interactive poster presentation (from De Simone et al. 2001: 954).

The DIPP is a pdf version of a traditional poster that can be projected on a wall or screen at allotted times. They are often given dedicated sessions, where each presenter previews his/her poster for 3-5 minutes and summarises the research, so that the audience is able to decide which presentations to attend during the poster session proper. Thus presenters can showcase their work before the poster session and attract a higher number of interested viewers.

During the DIPP a presenter can enlarge parts of the poster to concentrate on specific aspects of the research. The DIPP file can also be made available online by conference organisers, not only after but also before the conference, so that participants can browse through an archive of posters and retain the information they are mostly interested in. This contrasts with the traditional poster, which is extremely constrained in time and space, being displayed only for the duration of one or (e.g. in physics and medicine) several conferences. The impact of a traditional poster is therefore limited: after the conference it may end in a bin or on the department's wall, before it eventually deteriorates and is thrown away. DIPPs instead are conductive to a much larger audience, more interactive presentations and in-depth discussions of scientific evidence. The audience (cf. De Simone et al. 2001) tends to welcome digital presentations enthusiastically.

Powell-Tuck et al. (2002) compared the quality of what they term 'e-posters' and traditional posters. Their e-poster was in fact a DIPP and was displayed and handled in exactly the same way. Presenters at a medical congress in 2001 were invited to submit ther title and contents of their posters electronically. Like DIPPs, the submissions were projected as posters and presenters 'talked to' the projection and clicked on individual tables or figures to enlarge them. Delegates attending two e-poster sessions, and a control group attending two simultaneous traditional poster rounds, answered a questionnaire on the ability of delegates to hear and see well, on the posters' clarity and attractiveness, on whether the format of the session captured their interest and encouraged discussion. They also responded on how e-posters should be used in future meetings. The results were in favour of e-posters, which facilitated the viewing of the posters' full content, captured viewers' interest and encouraged discussion. The fact that an e-posters archive allows a detailed computer-based search of presentations is highlighted by Powell-Tuck et al. (2002), who add that post-conference collaboration is enhanced by email contact.

If the e-poster is viewed via a computer screen or LCD display, numerous features can be added to enhance communication between presenter and audience. Figure 2 below shows the pdf of a traditional poster, with such interactive elements as the QR Code (bottom right), hyperlinks and email addresses. The poster can be scrolled through and viewers can email comments and feedback to presenters immediately.

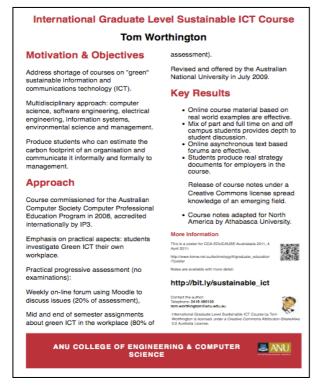
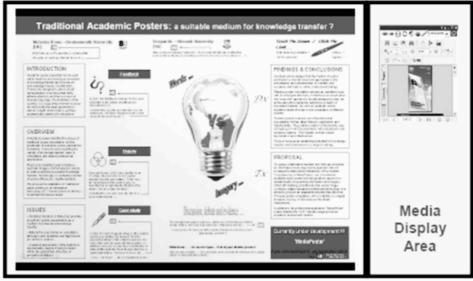


Figure 2. Example of e-poster with QR Code and hyperlinks (from Worthington 2011).

Smartphone users equipped with the right app can scan the QR Code image to receive text and contact information, connect to a wireless network, or open a webpage in the phone's browser. Users may also generate a vCard contact on their device or compose an email or text message using the QR Code's contact details. Hyperlinks in a poster's content are particularly useful as they overcome the problem of limited space; by linking the poster to other virtual spaces, the author can provide more information on his/her research and be contacted immediately by email. In a further development of this format, Rowe and Ilic (2009: 5) suggest the term 'MediaPoster':

In developing the 'MediaPoster' concept, we have looked to enable the combined evolution of the DIPP principle and its traditional forbear. The 'MediaPoster' aims to combine information technology (IT) with a 'traditional' poster appearance, thus retaining the static image and at the same time releasing the full interactive potential of the medium.

Like an e-poster, the MediaPoster is presented (from a laptop) via an interactive LCD display or a smartboard, with embedded links to additional information. The novelty in this case, is that viewers can select an area of interest on the poster surface and access a full range of linked documents and images which open up in a dedicated viewing area at the side of the screen. Viewers are therefore not redirected to a webpage (which would force them to leave the poster presentation) but remain instead within the same environment, with the original poster always in full view (Figure 3). MediaPoster authors are free to add as much (or as little) of supporting material as needed, while readers can choose how much information to browse, concentrating single aspects or retaining all the additional information provided via the hyperlinks.



< -----> A1 dimension ----->

Figure 3. How a 'Media Poster' is viewed (from Rowe & Ilic 2009: 6).

Technology is also changing the way conference organisers handle poster presentations. One such resource is Multieposter [http://www.multieposter.com], an online service that allows authors to submit a pdf or PPT version of their poster, order specific sections and label them remotely (Figure 4).

Sequence		Section Title		Comments	
1	TITLE SLIDE		TITLE WIT	H CO-AUTHORS LIST	De
2	BACKGROUND AND A	MS			De
3	METHODS				De
4 FISH INTERPRETATION					De
5			SHOW THE	SECTION WITH 4 GRAPHICS/IMAGES	De
6	RESULTS		LEFT BOTT	LEFT BOTTOM SECTION	
7	CONCLUSION		RIGHT BOT	TOM SECTION	De
carefully Example	divide your p :	sections you	the sections y	the presenter, our multimedia te ou define.	
carefully Example	divide your p	oster according to	the sections y	ou define.	
Example YOU	divide your p : JR POSTER	SECTIONS YOU	the sections y		
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Example Example YOU	divide your p : JR POSTER	SECTIONS YOU I	the sections y	ePoster: PLAYBACK OF SECTIO	ON 1
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Example Example YOU	divide your p : JR POSTER	SECTIONS YOU I	the sections y	ePoster: PLAYBACK OF SECTION	DN 1
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Example Example YOU	divide your p : JR POSTER	SECTIONS YOU I		ePoster: PLAYBACK OF SECTION	DN 1
Example Example YOU	divide your p : JR POSTER	SECTIONS YOU I		ePoster: PLAYBACK OF SECTION	DN 1

Figure 4. Poster management interface in Multieposter.

Recent years have thus seen a gradual shift away from the traditional paper-based poster. The consequences of this radical devolpment are entirely positive, as the reader is forced to follow the sequence of the slides and cannot skip unwanted information or browse through the entire poster before deciding on which aspect to focus. Software developers claim readers need to be guided through the presentation but I would argue that the use of numbered sections (provided they designed in a sufficiently clear and intuitive manner) makes it unnecessary to impose a pre-defined reading sequence. The use of a uniform template, moreover, prevents presenters from using many visual elements that attract viewers (cf. D'Angelo 2010, 2011a, 2011b, 2011c, 2012). The presenter has no way to 'stand out from the crowd', making each poster equal (from a cognitive point of view) to everyone else's. A final negative aspect of this shift is that neither the best practices of poster design nor those of PPT are followed.

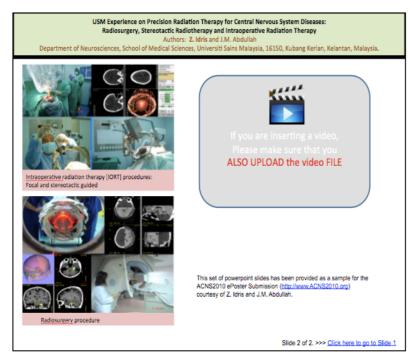


Figure 5. Sample for ACSN 2010 e-poster submissions (courtesy of Z. Idris and J.M. Abdullah).

When assembling a PPT poster presentation, authors are advised to avoid slides with too much text crammed in them, as this diminishes the retention of information (Keedy 1982; Gottlieb 1985; Alley 2003; Atkinson 2005; Doumont 2005; Stoner 2009). Also, the reader may be put off the amount of text and stop reading the presentation altogether. A positive aspect of slides, on the other hand, is that they can easily embed video and audio clips (Figure 5 above), which enhances the presentation's content as well as its salience.

Another type of medium sometimes employed at conference is the web-based e-poster. In this case, presenters produce webpages describing their research results or ongoing research, as well as additional information, images, videos, etc. Despite its hyperlinks, and multimedia, the webpage presentation is still bounded by two reading levels: the first is that of the traditional, the second an extension of the poster, with a downloadable pdf version and video files. The example in Figure 6, for instance, has list of subsections in the left margin which in turn lead to a number of hyperlinks and downloads:

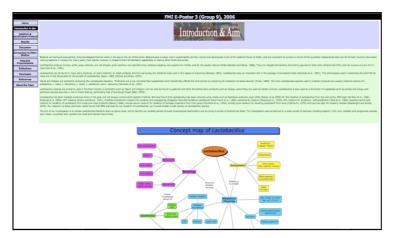


Figure 6. An example of web-based e-poster.

A final example of how far the poster has come, are virtual science fairs with online conferencing or weblogs (Powell-Tuck et al. 2002; NCATnews 2007). In October 2006, the New Media Consortium [http://www.nmc.org] hosted a 12-day international symposium on the impact of digital media. The symposium took place entirely within the virtual world of Second Life, where NMC had built a virtual campus. On this occasion, poster presenters were not required to physically travel to the conference, but made use of virtual reality to interact with other participants who might be online. Much like in a real poster session, we see a large poster in the background (Figure 7) and the presenter's moving alter ego. To activate the presentation, virtual participants simply need to step closer to the poster and enter the circle which surrounds the avatar. They can also pose questions and make comments.



Figure 7. Second Life poster session, with the avatar of NCAT director Christopher Watts.

A virtual conference undoubtedly offers a number of advantages, such as the fact that there is no need to travel to a conference carrying (or having to post) a cumbersome poster. This removes the cost and burden of travel as well as the risk of damaging the poster. However, to participate one needs a fair amount of IT skills, which is not always the case and, no matter how similar to real-life, the virtual setting can hardly reproduce the atmosphere and excitement of a real-world conference, which makes networking harder and certainly less spontaneous. Finally, one should consider that setting up a virtual conference is inevitably expensive and time-consuming.

3. Conclusions

The verious digital versions of poster presentations now available to scholars offer undeniable advantages over their physical counterparts: they cost next to nothing, allow multimedia additions, have huge archival capabilities, and save time for presenters. These innovations are changing the way posters are displayed, presented and retained by the audience. Because information retention and a fast spreading of knowledge is the ultimate goal of poster sessions, may they be traditional, digital or virtual, proper investigations should be carried out in these new media forms in the near future.

Despite the numerous studies mentioned in the present paper, much remains to be learned about academic posters. Pioneering explorations have certainly shed some light on this often neglected academic genre, advocating a more central role for posters at academic conferences, in the workplace and within the classroom. However, no linguistic analysis has yet been carried out and a cross-disciplinary study of recurring textual/visual elements in posters would help to highlight which communicative strategies are available to presenters.

For this purpose it would be useful to produce representative annotated corpora of conference posters presentations, alongside collecting audio recordings of interviews with poster presenters from different disciplines, with different levels of experience and academic status. At the same time, there is a need to record ongoing developments in poster presentations within each discipline (De Simone et al. 2001; Powell-Tuck et al. 2002), as technology changes the way such content is displayed, presented and retained by the audience.

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