STUDENT-ORGANISED RESEARCH CONFERENCES

AYDIN INAL, KEVIN ROCHFORD & JEAN BAXEN
School of Education, University of Cape Town, South Africa
inal@myhorizon.org; kr@humanities.uct.ac.za; jb@humanities.uct.ac.za

In 2002, two masters students—who had just graduated with distinction—took the initiative to organise an Education Students' Regional Research Conference, complete with invited leading guest speakers and 600+ pages of pre-published Conference Proceedings. More than 50 education research students from six universities and technikons, representing 15 countries, published their work either as hard copy abstracts or as full papers or as entire dissertations included on diskettes inserted into the bound Proceedings. For most of the participants—who were either honours or masters or doctoral students in education—this was their first publication and conference presentation. The first author of this paper was the student editor of the Conference Proceedings. This paper reports on the importance and success of two student-led conferences, drawing on the written qualitative comments and suggestions of the participants at the conclusion of the two days of paper presentations each year. The perceptions of selected sub-samples were also monitored and tracked quantitatively. This paper presents evidence that student-led research conferences have both short-term and long-term perceived benefits. For example, student-led conferences serve to strengthen inter-institutional collaboration, increase publication records, and develop processes to ensure equity and career path enhancement, especially for women.

INTRODUCTION
One of the policies of the University of Cape Town is that honours, masters and doctoral students take opportunities to speak publicly about what they have learned by carrying out a research investigation.

In 2001, and again in 2002, education students from the five tertiary institutions in the Western Cape did not wait to be offered opportunistic chances to present their research work in an open forum. Instead, they came together and organised and conducted their own annual Education Students Regional Research Conference, with their lecturers and supervisors being sidelined mostly on the back rows of the lecture theatres and seminar rooms as assistants to the organising students (Monday Paper 2002).

They presented papers on a wide range of original educational, scientific and technological investigations, including:

- second year technikon students' comprehension of basic scientific and technical terms;
- students' conceptual understanding of force, energy, work and power;
- students' insights into selected processes involved in the retention and drainage of water in soils;
- the assessment of students' knowledge of Galvanic electrochemical cells using different types of grouping arrangements for instruction and evaluation;
- teachers' perceptions of the introduction of computers into their learning environments;
- African students' conceptions of the nature of science;
- outcomes-based technical education;
- priorities for the teaching and learning of science/mathematics/technology education in developing countries;
- teaching non-western science and technology;
- gender and achievement in mathematics;
- language barriers to learning science and technology;
- technikon students' notions of electricity at tertiary level;
- the assessment of students' process skills in physics and technology;
- the roles of language in the teaching and learning of science;
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- real-life mathematics teaching;
- students’ proficiency in estimating angles and diameters;
- labelling museum specimens;
- assessing physics practical work experiments;
- the effect of different assessment formats on mathematics achievement scores;
- a comparative analysis of students’ drawings of a river;
- science achievement in rural and urban schools in Lesotho;
- topics in mathematics perceived by students to be easy or difficult;
- evaluation of the drawings in a modern textbook for science and technology;
- students’ conceptual understandings of heat and temperature.

Clearly, the time was opportune for these teachers of mathematics, science and technology, and others, to present their work systematically in public, while their emerging findings were still exciting and new.

BACKGROUND AND CONTEXT

At present, South Africa is not adequately succeeding in developing research. In 1990, people over the age of 50 years produced 18% of the new knowledge in the Republic of South Africa. By 1998 this figure had increased to 45%. Clearly, South Africa has not been developing research capacity. Research students cannot be trained just by attending and studying class work. Students must engage in research.

In the production of new knowledge, universities have been moving away from a Mode 1 epistemology of learning (factual, systematic, explicit, objective, codified, fragmenting into more and more specialisations, reductionist, orderly, empirical, establishment-minded, context-independent, theory-bound, authoritarian, impersonal, universal, transcultural). They are now in Mode 2 (i.e. knowledge that is holistic, context-driven, mission-oriented, multi-authored, heterogeneous, divergent, reflexive, personalised, insecure, entrepreneurial, workable) (Hills and Tedford 2003).

Thus conferences across the Mode 1 – Mode 2 continuum are very important; but delegates must also produce papers and be committed to quality in research. After getting their own ideas, researchers must still enter a community of scholars internationally, and must obey the rules and conventions. There must be rigour in discourse analysis. Equity, quality and accountability are equally important. Peer review mechanisms also remain vital in the research community.

In South Africa research training is particularly important for women. By undertaking a research report, dissertation or thesis, women can find their own voices at a time when it is difficult for women to develop a public voice. An Education Students’ Regional Research Conference is important because it provides an opportunity for women writing dissertations and research projects to have confidence and a voice in the public domain.

It was in this context that friendly education research students at the University of Cape Town decided to take the initiative away from staff in 2001. They arranged to lead, organise, manage and direct their own first inter-institutional regional research conference, running over one and a half days at the end of September. The first author, a physics/technology education research student, compiled and edited the pre-conference published proceedings running to more than 600 pages.

AIMS OF THE CONFERENCES

The aims and purposes of the gatherings for more than 50 research students from the University of the Western Cape, Stellenbosch University, the Cape Technikon, the Peninsula Technikon and the University of Cape Town were:

- To enable enthusiastic education students to present sections of their research investigations publicly and systematically in a supportive, sympathetic, helpful and encouraging environment.
To provide opportunities for these students to publish their on-going research findings rapidly in one of three forms - either as an abstract or as a full paper or even as an entire successful dissertation - as a formal part of acknowledged conference proceedings, while their research results were still fresh.

To enable new education research students to start compiling their own personal CV records of publications and successful conference presentations; and to enable brief details of their published work to appear in the official 2001 Annual Research Reports of their respective tertiary institutions.

To encourage more experienced doctoral and masters students to share their research expertise and advice with their younger, eager, honours-level research peers.

To enable education research students from five different tertiary institutions to meet each other, to establish research linkages, and to form life-long friendships as professional educators in the new century.

To support the universal notion that a student's research training is not complete until tangible, visible outcomes of publications and public presentations have been attained by the student.

"Research is systematic enquiry made public." - Lawrence Stenhouse.

To enable education research students with scholarships or bursaries to produce visible evidence to their sponsors that they are indeed proceeding positively, with visible and acknowledged accomplishments and outcomes, in their on-going research studies.

THE NATURE AND ORGANISATION OF THE CONFERENCES
Details of the organisation and schedules of the conferences have been set out in the published Abstracts and Proceedings of the conferences, together with the above-stated aims (Baxen and Rochford 2001; Inal et al. 2002). Abstracts, full papers and whole dissertations were received from students electronically as attachments, with supervisors’ prior approval prior to the conference. The proceedings were assembled and published prior to presentation, and each student received a hard, bound copy at conference registration. Full papers and whole dissertations were reproduced on diskettes for each student, and these were inserted into each bound copy of the proceedings. This saved paper and kept the volume of bound proceedings slim. Students designed and edited the conference proceedings, chaired the sessions, introduced the guest speakers, arranged the certificates, welcomed the judges of the best paper awards, and so on.

The effectiveness of the conferences was assessed using evidence systematically gathered from the written responses of the participant research students.

DATA GENERATION: PRE-CONFERENCE
Pre-conference data were obtained quantitatively from students using self-rating scales.

In 2001 and 2002 a total of 93 education students, who were formally engaged in research investigations, responded to ten presented Likert-type items. They recorded their self-perceived levels of progress, confidence and support at specified times during the progress of their research project. The combined pre-conference sample comprised a total of 63 honours degree students who were part-way through completing their substantial research project over a period of eight months, plus 30 masters degree students who had also progressed several months into the work required for their minor dissertations.

The self-rating scales focussed on:
- How well the students felt their research investigation was releasing and developing their research potential.
- How confident they were about their research investigation.
- How keen they were to seek assistance with their research from other people.
- How much personal encouragement they felt they needed.
- Their self-perceived chances of succeeding in research.
- How lucky they felt in doing research.
- Their willingness to take advantage of opportunities.
- How much they felt they were benefiting from their attempts to conduct a research investigation.
- How happy they felt while undertaking their research project.
- How helpful their friends had been with their research study.
These criteria were selected and adopted from the findings of several recent studies in education (e.g. Hubbard 1995; Burnett, Lukas and Dooley 1996; Chao and Huang 2001).

The presented scales invited students to respond with a self-assessment rating that ranged from 0 (“not at all”) to 5 (“very much”) on the ten variables.

Using complete data supplied intact before the conferences by 75 of the 93 responding students, the Cronbach alpha reliability coefficient calculated for the pre-conference Likert instrument yielded a value of $\alpha = 0.83$.

All 93 students comprising the 2001/2002 pre-conference sample were registered in different classes at the same university. Hence, this combined convenience sample cannot be considered as necessarily representative of education research students from all five tertiary institutions in the Western Cape who arrived subsequently to be active presenters in the September conferences.

Of these 93 research students, 59 proceeded to present their conference papers publicly and the so the 34 students who decided not to do so formed a comparison group for monitoring purposes.

**DATA GENERATION: POST-CONFERENCE**

At the conclusion of the student-organised conferences in 2001 and 2002, post-conference data were obtained from 83 participant students from six different universities and technikons who had presented research papers. (One presenting masters student was a temporary visitor from a British university).

Data were generated using two instruments:

- Quantitative data were obtained from 59 of the 83 participant students using the same self-rating scales that had been used earlier to obtain the pre-conference data.
- Qualitative information was gained by asking questions on an open-ended conference programme evaluation form. The 83 participant student presenters were invited to describe and record three benefits that they had derived from actively reporting their investigations at their own regional research conference; and they were also asked to offer suggestions for the following year’s student-led conference. Several lecturers also completed the qualitative conference evaluation sheet.

The post-conference sample in 2001 and 2002 consisted of 47 honours degree research students and 36 masters and doctoral education students from the five tertiary institutions in the Western Cape, South Africa. They were citizens of fifteen different countries, including Turkey, Japan, Austria, Great Britain, Canada, Germany and neighbouring regions of southern and equatorial Africa. Thus there were 83 student-presenters in total who supplied evaluation data.

At the time of the conference, the honours students had almost completed their year-long course, and shortly thereafter they were required to submit their major research project for examination. In September 2001, 27 monitored honours students presented their research papers at the first regional student conference; and a second intake of 20 honours students presented in the following September 2002. The masters and doctoral students who presented papers in 2001 and 2002 were at various stages in the completion of their dissertations, and their research investigations ranged from being early in their development to far advanced.

**FINDINGS**

**Qualitative analysis and results**

Qualitative data were supplied on the open-ended survey sheets by 61 respondents at the conclusion of the education students’ regional research conferences held in 2001 and 2002.
A qualitative approach locates the researcher firmly within the research process and acknowledges the role of researcher subjectivity. Fundamentally, such an approach strives to gain a deep understanding of a phenomenon from an insider perspective; and it proposes to describe and understand rather than explain and predict human behaviour (Babbie et al. 2001). Key within such an approach is acquiring an understanding of individual perspectives and experiences, and in understanding the phenomenon in natural settings (Fraenkel and Wallen 1993; Maykut and Moorhouse 1994). This implies an all-embracing approach that includes a sensitivity to context and process, an inductive approach to analysis, flexibility in research design and a commitment to understanding, rather than to prove or promote (Green 1998).

Benefits derived by students from leading their own conference, as described on their feedback sheets, occurred at four levels:

At the individual level
The students’ recorded benefits were categorised as follows:

• The widening of personal horizons

In this category the themes of enhanced networking, experiencing alternative styles of presentation, learning about different, unfamiliar research methods, meeting new peers from different universities and gaining additional insights were frequently mentioned.

Evidence for these themes may be taken from quoted examples of benefits given by students, such as:

“I learned a lot from the presentations I attended — the different angles of looking at research projects.”

“I benefited from the contacts and networking with other researchers in regard to methodologies, concerns, pitfalls, etc.”

• Individual feedback and good advice

Evidence for this category may be taken from quoted examples of benefits given by students, such as:

“I was able to see how other people went about their research, and therefore could review mine and find where some information was lacking.”

“The questions asked on my presentation helped me sharpen my research report.”

• Individual, personal experiences

Often the students’ responses included experiential adjectives and nouns such as:

“The conference provided me with inspiration and motivation.”

“I was thrilled. The experience of a lifetime. I will never forget it.”

“I am still very excited about the conference, especially given the fact that I had the nerves to participate. I gave it my best and I GOT AN AWARD!!!! OH!!!…I worked so hard…Thank you for making my studies alive and meaningful.”

• Individual growth

Evidence for this category may be taken from quoted examples of benefits given by students, such as:

“My capacity to critique research, including my own, increased as a result of exposure to different research designs.”

“I had a rich learning experience. It opened my sight on how to structure for presentation and assignment purposes. It helped me to acquire and build more information on my research topic.”
At the level of group psycho-social dynamics
Responses were categorised as follows:

- Psychological responses
  In this category the themes of shelter, safety, assurance and isolation-breaking emerged.
  Examples of students’ comments were:
    “A space to voice your own research, a safe space!”
    “I appreciated a word of encouragement from the experienced researchers.”
    “The conference contact and conversation broke in a small way the feeling of isolation associated with a lengthy postgraduate research project.”

- Close group social dynamics
  In this category the themes of group support, friendship and group sharing emerged.
  Examples of students’ perceived benefits were:
    “I found sharing people’s struggles with their research helped me to focus and reflect on my own research: getting to meet different people from different disciplines, and talking to them about what they do, and sharing the knowledge of other people’s research experiences.”
    “I was able to give directions to younger, less experienced researchers.”
    “The conference was supportive and informative.”

At the level of conference organisation and management
Examples of students’ perceived benefits were:
    “The conference organisation and management were excellent.”
    “The skill and dedication with which the organisers did their work has been overwhelming.”
    “A great event! Just get bigger and better! Thanx.”

At the level of public accountability
Responses were categorised as follows:

- The importance of research ethics
  For example:
    “The address on research ethics gave good guidelines for my data collecting.”

- The impact of publishing
  Examples of students’ comments were:
    “Of most benefit were the published Abstracts and Proceedings.”
    “The possibility of publishing my work was the greatest benefit.”

The importance of standards for public presentation
In this category the themes of correct structure, learning to present in public and be accountable before unfamiliar faces were mentioned.
Examples of students’ comments were:
“It’s all about rigour, rigour, rigour.”

“The conference gave the additional experience of accounting for my work in public.”

Quantitative findings
An analysis was conducted of the responses of the pre-conference sample (n = 93) and the participant conference sample at the end of their conference (n = 59) to the ten Likert scale items.

It was found that the two samples were statistically similar in respect to the extent to which the students said:

- They were keen to seek assistance with their research from many people;
- They needed encouragement;
- They were willing to take advantage of opportunities in their research; and
- They felt that they were benefiting from their attempts to conduct a research investigation.

Using, where applicable, t-tests, sign tests and Wilcoxon tests, it was found that the 59 conference paper presenters recorded significantly higher scores than the 93 respondents in the pre-conference sample in regard to the extent to which they said:

- Their research project was releasing and developing their research potential;
- They felt confident about their research investigation;
- They felt their chances of succeeding in research were high;
- They felt lucky in their research;
- Doing a research project made them happy; and
- Their friends had been helpful to them with their research project.

DISCUSSION
What the presented evidence suggests is that student-led conferences do, indeed, provide a forum for students to network, exchange ideas, critique and reflect on others’ and their own work as well as facilitate growth personally and academically. While the long-term benefits cannot be measured from student responses, the data does point to the immediate spin-offs such conferences have. The most obvious is that students leave the conference motivated to reconsider their own work in the light of feedback from peers, lecturers and conference visitors, and as a result of the work of others. Secondly, the student-initiated conferences appear to expand their domain of possibility regarding the nature, form, content and style of research. Thirdly, networks are established that, under normal circumstances, would not otherwise occur, thus breaking the common experience of isolation.

CONCLUSION AND RECOMMENDATIONS
Student-led conferences serve to benefit individual presenters, strengthen inter-institutional collaboration, increase publication records, and develop processes to ensure equity and career path enhancement, especially for women and minority groups in emerging countries. To achieve this development even further, it is suggested that consideration might be given to three key factors, namely: sustainability, institutional financial commitment and inter-institutional student co-ordination.

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