To what extent can we consider research findings as “knowledge resources for changing practice” (Saunders 2014)? A case study in the Earth and Life Sciences at the University of Cape Town

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Abstract

The Proposal for Undergraduate Reform in South Africa has put the spotlight once again on curriculum and pedagogy in higher education. Giving students access to the academic literacies is a central focus for these plans to make a four year degree the norm. This paper reports on a move at the University of Cape Town to extend the research and experience we have gained in Academic Development foundation courses to mainstream courses in the earth and life sciences. The two phases of this project will illustrate some of the successes we have had in the ADP foundation course and consider what it will take for this research and experience to have an impact and inform curriculum and pedagogic initiatives in mainstream courses. In our interviews with mainstream lecturers, we have used the findings from the first phase of the project as ‘bridging tools’ (Saunders 2014) to draw out lecturers’ assumptions about what they believe curriculum needs to address with the hope that the data shown to them might encourage reflection and lead to changes in their practices. Murray Saunders’ think piece for this conference supports the notion that research outputs might be understood as the knowledge resources we could use for changing practice. It has been very thought provoking in unpacking what impact might mean in contexts like this and highlighting how complex it is to evaluate whether or not educational research is making a difference. Saunders (2014) indicates that we need new metaphors to describe the impact our research is having. For instance he argues that the impact can only be “indicative and evocative” rather than definitive. The paper will apply Saunders’ concepts of ‘use’ and ‘usability’ to this research in order to consider how it might or might not have the potential to make a difference.
The Proposal for Undergraduate Curriculum Reform (CHE2013) which sets out plans for a more flexible curriculum structure for tertiary education in South Africa is currently awaiting a decision from the Minister of Higher Education. This Proposal for a four year degree as the norm was drawn up in response to data showing low participation and high attrition rates affecting black students which has meant that only 5% of African youth in SA are currently succeeding in any form of higher education (Scott, Yeld and Hendry 2007). We are aware that township and rural students are underprepared for the traditional programmes offered in mainstream higher education and yet they all fall into the top decile of their age group, therefore the central challenge is to design curriculum structures and pedagogical approaches that will enable these students to unlock their potential (Scott 2013).

With this renewed focus on curriculum design and recognition of the growing mismatch between students’ needs and experiences and the academic institution and its curricula, it seems critical that we remind ourselves of what the late Wally Morrow was referring to when he called for “epistemic access” (2009:77) to higher education in South Africa. He defined it as “access to knowledge” and “to the forms of inquiry in the disciplines”. Allowing students access to disciplinary discourses so that they “learn the reading, writing, talking and listening rules of the game” Freebody et al (2008: 196) is precisely what academic literacies practitioners do and Academic Literacies research which is recognised now as a critical field of enquiry with a specific epistemological and ideological stance (Lillis and Scott 2007) can play an important role in informing pedagogy and curricula.

Academic Literacies research and experience has certainly informed the new Language Policy at the University of Cape Town (2013). This Policy was designed in 2013 and debated in a number of mainstream fora such as the faculty Teaching and Learning Committees and the Senate Teaching and Learning Committee. Therefore the policy has made a fairly significant difference in informing mainstream pedagogic debates and one could argue that Academic Literacies research is already making a difference in some corners of our institution.

The Policy was passed by Senate at the end of the year and is now in the process of being implemented. It adopts an English Plus approach, recognising English as the primary language of education but at the same time acknowledging that the development of both academic literacy (in English) and multilingual proficiency and awareness are essential graduate attributes. It is accompanied by an Implementation Plan which maps out an extensive strategy for the teaching of academic literacies. One of the objectives for academic literacy teaching in the Plan is collaboration between disciplines and skill providers (Language Development Group, Numeracy Centre, information and digital literacy specialists) to embed academic literacy in mainstream courses across the degree process with the idea that literacy-rich courses across the degree might be identified for students to collect credits in language and literacy competence when they graduate. The “skills providers” would work with the course convenors and lecturers to build academic literacy interventions in the relevant courses. The Plan also recommends

1 Much Academic Literacies research has focused on students’ written texts and their writing but the field has increasingly included research into a range of semiotic practices such as reading, numeracy, multimodal and digital practices.
that we continue to build language and literacy expertise among discipline specialists and that in some specified undergraduate courses where very little of the collaborative work has happened, a first stage should be to identify and map literacy practices and assessment tasks beyond the first year.

This paper reports on a move at the University of Cape Town to extend the research and experience we have gained in an Academic Development foundation course to mainstream courses in the earth and life sciences and to respond to Lillis and Scott’s (2007) call to widen Academic Literacies Research from small scale research projects to larger ones to allow for theoretical and empirical development of the field. The paper briefly describes the research and experience gained from one of these small scale research projects in an ADP foundation course in the earth and life sciences (Paxton and Frith 2014) which is now being used in a second phase of that project. In the second phase of the project we engage with ‘mainstream’ lecturers to map the academic literacy practices and requirements beyond the first year and to start a conversation with these lecturers. These two phases of the project will illustrate some of the successes we have had in ADP foundation courses and consider what it will take for this research and experience to have an impact and inform curriculum and pedagogic initiatives in mainstream courses. The paper will apply Saunders’ concepts of ‘use’ and ‘usability’ to this research in order to consider how it might or might not have the potential to make a difference.

**Foundation course project**

The Language Plan is fairly ambitious and yet UCT has made great strides over the last twenty years in embedding the teaching of academic literacies in foundation courses in the Academic Development Programmes (ADP) in all faculties and with a Writing Centre which has spread its wings to establish writing hubs on all campuses and some faculties. We have also had success in our institution at the level of small scale ethnographically framed academic literacies research projects. These have often been very useful for teacher-researchers wanting to engage critically in the contexts in which they work and improve their practices. There have been quite a number of these and they have in many cases informed curriculum development and pedagogy in these ADP courses (eg. Archer 2006, Kapp and Bangeni 2009, Bangeni 2009, Paxton 1998, 2003 and 2007, Paxton and Frith 2014; Thesen and van Pletzen 2006)). However, as I indicate, the UCT Language Plan and the possibility of changing curricula for a four year degree in South Africa calls for extending our work beyond the foundation courses and ADP Programmes.

I will first briefly describe the findings and successes of the Academic Literacies research project in the ADP foundation course in the earth and life sciences before going on to describe the second phase of the project which is still a work in progress. For the first phase of the research the teaching team of discipline specialist, literacy and numeracy specialists designed an action research project aimed at further development of the pedagogy and curriculum around a scientific research assignment which was the major formative assessment in the foundation course. We used ethnographic research methods typical of Academic Literacies research to gain insights into the practices and assumptions students drew on as they learned to write a scientific report with a strong focus on quantitative information.
However, our interviews with students also signalled that there were problems with curriculum, particularly at the level of alignment and course design. The course was an interdisciplinary one and modules were embedded within an earth systems framework and aimed at providing students with an understanding of the processes that shape the earth and the connections between these processes. However, in our discussions with students we established that they had failed to see how the major assessment task i.e. the scientific research project on waste management was relevant for their course. We realised that the course convenor had just assumed that students would make these connections themselves. The fact that they didn’t has meant that she has had to redesign the course to make the epistemology of the discipline, the aims of the course and the links between the theory and the real world application more explicit. Waste management is now taught as part of the course content to ensure that clearer links are drawn between the content and the major assessment task.

The dialogue with research participants around their texts highlighted the challenges that students from more disadvantaged township and rural schools were having with the academic literacies including quantitative literacy or numeracy. We found that some quantitative concepts were not well understood and realised that students were drawing on prior discourses from home and school that were likely to interfere with knowledge building around quantitative concepts in the natural sciences. For the teaching team this meant that new ways have had to be found to teach the quantitative concepts that have posed problems for students.

We also found that students were having difficulties with the genre and conventions of scientific writing and that they were transferring referencing practices they had used in school such as bibliographies with no in-text referencing. This illustrated for us that referencing needs to be seen as a knowledge making practice, rather than a technical skill and our course design now includes the teaching of the specific textual functions and generic conventions and practices of the discourses of science and of mathematics. As educational developers we realise that this teaching builds on issues of identity and that identities are implicated in the creation of texts. Therefore it has been important for us to be more explicit about the differences between school and university research and referencing practices.

As this was an action research project conducted over a period of three years (2010-2012) our research findings have informed ongoing curriculum development and pedagogy each year and student marks on the project have improved and student evaluations, particularly in 2012, have been very positive.

A further outcome of this project has been the way the research and collaboration has impacted on our own professional development. We have realised that knowledge making needs to be a dialogic process which draws on a range of semiotic modes. In contexts where educational resources have not been equally distributed we need a more complex understanding of the way students are constructing knowledge from texts, so that we become acutely aware of discourses that students bring from a diverse range of schooling and home backgrounds. It is only then that we can build additional steps into course design and pedagogy to scaffold learning and thus avoid conceptual breakdown.

Phase 2: Mapping the literacies
While this research project and the consequent changes to pedagogy and curriculum really have made a difference in this one course, as I have indicated, it seems important that those of us working in academic development programmes who have research and experience in academic literacies and curriculum design for extended curricula, share our research and our expertise with academics in the broader university. In addition, the university's new Language Policy and Implementation Plan foregrounds the embedding of academic literacies and emphasises that the need for discipline embedded support in the literacies does not stop at first year because the literacy demands become more complex as students move through their undergraduate years. This is particularly true for students for whom English is not a first language.

With these responsibilities in mind, our research team developed a second phase to the project. In this phase we have shifted beyond a focus on our own course to engage with course convenors in a range of different disciplines to which our students progress. We are interested in what the academic literacy requirements and expectations are of the different disciplines and whether or not these are mediated in any way. To this end we have engaged with course materials and interviewed 12 lecturers/course convenors across the undergraduate degree in Biology, Archaeology, Microbiology, Environmental Geographical Sciences and Geology. We also plan to interview past students to get their perspectives on the literacy demands of their second and third year courses and how well they were equipped to meet them. In addition we will look at student performance data as further evaluation of the foundation course.

This second phase of the research project is still in progress but the interviews with staff are now completed and we are in the process of analysing them. In these interviews, we have used the findings from the first phase of the project as ‘bridging tools’ (Saunders 2014) to draw out lecturers’ assumptions about what they believe curriculum needs to address, with the hope that the data shown to them might encourage reflection and lead to changes in their practices.

**Findings: Learning about literacy practices that were new to us**

The interviews have been fascinating because we learned of a range of academic literacy practices which were new to us such as the spatial visualisation practice of “reading” a rock in Geology, teaching perspective in Environmental Geographical Sciences and cross section in Biology. These disciplines focus on three dimensions or even four dimensions if the time dimension is included.

As a lecturer in Geology put it,

“...to be a good scientist, you have to be a good observer and that’s the point of field trips – not to google a pretty image to put in a report, but to put in your photograph and describe it – make your own observations”.

Another lecturer told us that the challenge was to get students to “see” what the lecturer saw “…they don’t see things that we take for granted, like it’s so visually obvious that a bivalve and a gastropod are so different but often I am amazed how students don’t see things”.

As a lecturer in Geology put it,
Findings: Innovative mediation practices

We were also introduced to some innovative ideas and interventions lecturers were using to assist students with acquisition of the literacies. For instance, one Geology lecturer really went out of her way to assist students with their writing and had some interesting ideas on giving feedback. She felt that students really struggle to pare their writing down, to communicate the essentials and not waffle. She was concerned that feedback using track changes and comments on electronic documents did not work in terms of improving students’ ability to write because they simply accept the lecturer’s changes uncritically. To address this, she has developed a system of rewriting a few paragraphs of a student’s text to model a concise and more appropriate style. Then her students are asked to write 3-5 critical points about why they thought the paragraph was more clearly written. Another innovation that seemed to be working very well was that Biology lecturers now require students to present group seminars in the evenings on their final year field trip. These are based on the reading of assigned journal articles and students are expected to interpret and present some of the data from the article. One of the lecturers commented that “it was amazing the level of depth that students got out of these articles – the critique that they present at that level!”

Findings: Lack of mediation and planning

However, on the whole we have found that students are not taught the literacy skills required and a number of lecturers quite openly stated that they did not see it as their responsibility to teach reading and writing. It seemed that students are expected to acquire the literacy by osmosis or by observation and trial and error. For instance, a number of lecturers suggested that students should learn to reference by reading journal articles and copying the way writers of journal articles perform the practice of referencing. Lecturers often commented that they were not sure where students acquire skills such as using Excel but did not see it as their duty to teach them. In some courses, students were required to write essays in the summative course assessment although there were no strategies for the development of writing through formative assessments and feedback. Writing was mostly seen as a product rather than a process and the idea that writing about a subject in a process-led, interactive way may mediate learning of the subject (Ivanic 2004) was quite foreign to these lecturers.

The importance of reading and writing for shaping students’ cognitive processes is now well established after extensive research in this area over the last four decades (Britton 1975, Emig 1977, Langer and Applebee 1987, Bazerman 1988, Kelly and Bazerman 2003) and yet, as Lea (2004) has pointed out, discipline specialists seldom take this into consideration when planning their courses. This means that academic literacies components are often added on after the course design process is completed with no thought given to curriculum alignment or to conceptualising writing assignments as an opportunity for students to learn the course content.

Another concern is that departments do not plan the development of literacy and quantitative skills sequentially through the degree so that what is learned in second year builds logically on what has been learned in first year etc. etc. One lecturer identified the problem of lack of consistency in expectations and requirements for writing in his department. He said,
The problem here is that students are getting different directions from different staff members within this one department because of the different disciplines – even in this rather narrow context, we actually have different ideas about how writing should proceed... and require different things when the students hand in a report.

These kinds of problems could be resolved if departments sat down to talk about and plan approaches to the development of academic literacies in their degree programmes.

Our ethics agreement for this project calls for reciprocity in the research so that we are committed to reporting back on the findings from the research in the form of a written report to be sent to all participants. We will also do a presentation on the research at the UCT Teaching and Learning Conference in October. In our reportbacks we will highlight the strengths (such as some of the innovative work being done) as well as outline recommendations for improved integration of academic literacies.

Impact

At this stage the research has only identified the literacy practices and evaluated the ways in which these are being mediated. However I am very interested in how much impact the interviews with staff and the reports and presentations on the findings are likely to have in securing change to curricula and pedagogy in the specific disciplines we have targeted. However I am also very aware that it may be very complex to assess whether our research has had any impact at all because change is often so subtle and intangible. Murray Saunders’ (2014) think piece for this conference supports the notion that research outputs might be understood as the knowledge resources we could use for changing practice and in a sense there are two levels of research output as knowledge resources in this project. First, there is the data from the first phase of the project which we discussed with the interviewees and second there will be research outputs from the second phase in the form of reportbacks.

Saunders’ thinkpiece has been very thought provoking in unpacking what impact might mean in contexts like this and highlighting how complex it is to evaluate whether or not educational research is making a difference. He indicates that we need new metaphors to describe the impact our research is having and he argues that the impact can only be “indicative and evocative” rather than definitive. In the next section I will attempt to apply Saunders’ concepts of ‘use’ and ‘usability’ to this research in order to consider how it might or might not have the potential to make a difference.

Use and Usability

Saunders sees ‘practice’ as central in considering the way knowledge resources produced by research might be used. As he says, “the way research is used depends on the capacity of the potential users to respond to the messages research might contain” (Saunders 2014:3). Although some interviewees responded positively to ideas we suggested and were quite interested in what our research was showing, they noted that it would be useful to have some explicit input on how to approach some aspects of literacy teaching such as how to read a journal article. Others indicated that they had no experience or training in teaching the literacies. I think this points to the need for follow up from the
research. There is a need to engage with these disciplines in scholarly fora such as Science Teaching and Learning Groups or some of these lecturers might be encouraged to participate in postgraduate courses and staff development initiatives that we have been involved with for many years. Another idea that has been suggested is that we hold an annual ‘Writing Day’ in the Faculty of Science. Of course, as Saunders (2014:4) suggests, the research outputs that will have the greater chance of maximising use will be those that build on what is already there and this would only apply to a few staff who already have a good understanding of academic literacies and their role in learning. We certainly had the sense that staff who were already passionate about literacy were more likely to respond positively to the experiences and research that we shared with them.

Saunders (2014:3) indicates that “…the extent to which knowledge resources are recognised as ‘useful’ by potential users has ideological, temporal and organisational dimensions.” One of the characteristics he points to of this ‘use environment’ is that “The output connects effectively with systemic processes. This means the messages are able to feed into structures that are able to identify and act on implications.”

I found this a useful way to think about our interviews. In many ways the timing of this project could not have been better because there is a new language policy and an implementation plan in place which clearly calls for teaching of the literacies right throughout the degree programme and the science faculty has developed an increased focus on teaching and learning at the first year level over the last two years in order to increase their throughput rates. However it is still true that very few scientists see teaching and teaching of the literacies as an important focus for their university work because their primary interest is in their research (the ideological dimension). In these cases it seems important to strengthen the organisational dimension. We need to be sure that organisationally there are systemic processes and structures in place to ensure that teaching and learning of the literacies is given appropriate emphasis and that the recommendations in the Language Plan are, in fact, being implemented. The university’s system of departmental reviews could be considered one of these systemic processes. The connections of these systemic processes to our research outputs was well illustrated when a departmental head told us after his interview, that his department was preparing for a review later in the year and that he would appreciate seeing a copy of our report to assist them in preparing for the review. For this department it would seem that structures are in place to ensure that our research might have some impact, but it will really depend on what structures and processes are in place following the review.

Conclusion

Although this second phase of the project is really in its early stages, these have been useful ideas to assist in answering the question asked at the beginning of this paper ie What does it take for research and experience gained in small scale Academic Literacies research projects in ADP courses to have an impact and inform curriculum and pedagogic initiatives in mainstream courses? The application of some of Saunders’ ideas to this case points to some of the challenges involved in widening Academic Literacies Research from small scale research projects to larger ones and to changing practice. What the paper highlights much more clearly is that if making a difference through qualitative research means preparing
the ground for changing practice, this will require very careful thinking and planning at the institutional level.

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