

Making Research Skill Development Explicit

Interim (Formative) Report

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External Reviewer**

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The project, “Making research skill development explicit in coursework: Four universities’ adaptation of a model to numerous disciplines,” funded by the Carrick Institute for Learning and Teaching in Higher Education (now the Australian Teaching and Learning Council), commenced in November 2007.

This report is the result of a visit to the University of Adelaide in October 2008. The purposes of this visit were 1) to familiarise the external reviewer with teaching developments using the Research Skills Development (RSD) Framework, and 2) to offer formative feedback to members of the project team at the halfway point in the project.

Process

1. The reviewer asked teachers of subjects using the RSD Framework to provide:
 - 1) the subject handbook,
 - 2) all other materials distributed to students (assignment sheets, marking rubrics, relevant readings, etc.) either in print or electronically,
 - 3) samples of student work produced for assignments developed under the RSD Framework,
 - 4) conference papers, journal articles, etc (whether published or in draft) describing use of the RSD Framework.
2. The reviewer was provided with transcripts of interviews with some students who had completed RSD subjects, transcripts of interviews (conducted previously) of teachers in RSD subjects, results of pre- and post-intervention surveys of students, results of student evaluations of some RSD subjects.
3. After studying all materials provided, the reviewer informally interviewed members of the project team at the lead institution, the University of Adelaide:
 - 1) teachers of Biology, Electronic Engineering, Nursing, Film Studies, Software Engineering, Introduction to Academic Methods, and Oral Health,
 - 2) the project’s Academic Research Officer and the Project Manager,
4. The reviewer consulted extensively with the project’s leader, Dr. John Willison.

Limitations

It was agreed, primarily for reasons of economy, that the external reviewer would not visit other institutions involved in the project at this time.

The reviewer did not receive all subject materials requested.

As in evaluating any classroom process, there are many variables affecting both individuals within the group and the group as a whole. It is impossible to make judgments about the effectiveness of any intervention in isolation.

This report summarises impressions, raises questions, and attempts to suggest some directions for the second year of the project. It does not attempt to make judgments about the success of the project. That is, the intention is entirely formative.

Impressions

1. The RSD Framework is a robust tool for teachers in a wide range of disciplines and at levels of tertiary education from 1st year coursework through postgraduate research.

One of the surprises has been to see how the RSD Framework is capable of informing the development of teaching materials, assignment tasks and marking rubrics at many levels. A nurse educator has constructed a series of tasks for first year students to help them develop an understanding of the numeracy skills required of nurses; he identified elements of numeracy in all six facets of the RSD Framework and restricted the applications to the lowest level of student autonomy. For him, the RSD Framework provided a powerful tool to reconceptualise teaching which had traditionally been mechanical and focussed on calculation without context. Others are using the RSD Framework to explain to students what is expected of them and to give feedback in more advanced undergraduate courses, at honours level, and in postgraduate settings.

At first glance one might expect the RSD Framework to be most suitable in science-oriented subjects. However, a teacher of Film Studies has adapted it to help structure student research assignments. Others are using it in a bridging course for international students, in psychology, and in teaching law.

What became apparent was that using the RSD Framework required the teachers to consider very carefully how to use the RSD Framework and often to make some modifications of their own.

2. Effective use of the RSD Framework requires a substantial investment of teachers' time.

No curriculum development tool provides a silver bullet which will magically correct all problems. One teaching team has been using the RSD Framework for nearly five years, and it has gradually become deeply embedded into their first-year, full-year Human

Biology subject. Some innovations were more successful than others; some materials have been redrafted several times; always it has been necessary to gather evaluative information to assess the effectiveness of each development. Most recent data suggests that there are measurable benefits for most students as a result of the effort put into these developments.

Where the RSD Framework is being used primarily to provide feedback on assignments and is not yet well-integrated into the teaching program, it appears to be less effective in raising the quality of students' work. However, teachers who are using the RSD Framework for the first time have to start somewhere and assessment is a logical starting point, since we know that stating clear expectations and providing detailed feedback motivate many students to higher achievement. The next step for these teachers may be to provide more detailed guidance in setting tasks to assist students by breaking down the research process into clear steps, addressing specific facets of the RSD Framework.

3. Some comments by interviewed students and some discussion with teachers suggests that feedback on assessment tasks offered via marking rubrics may not be studied carefully enough by students to enable them to correct errors on subsequent tasks.

The idea of a marking rubric in which the cells of the RSD Framework (with modifications appropriate to the particular subject and task) are ticked to indicate where students meet expectations seems a very sensible way to streamline the marking task and provide structured feedback to students. The problem in some cases is that students will look for the pattern of ticks but not even read the text next to the tick. They certainly do not seem to process the feedback and use it in the next task. In such cases students gain little benefit from the feedback. There are a number of ways to address this problem: for instance, using a little class time to highlight strengths and weaknesses teachers observed while marking, placing sample papers with teachers' comments on subject bulletin boards, personalising feedback with oral (recorded) or written feedback in addition to the rubric. It is important to explain to students how to correct sub-standard work; simply saying it is not meeting expectations, even if one indicates clearly which expectations, is not sufficient.

4. There is some evidence that students in RSD subjects are gaining research skills which may transfer to subsequent assignments.

A final draft paper of a correlation study of the relation between grades on a series of research-oriented assignments over several years was made available to the external reviewer. There certainly seems to be development of research skills and the most likely explanation is that the teachers' interventions based on the RSD Framework are, indeed, helping students acquire skills which can be applied in subsequent tasks.

5. Some users of the RSD Framework are already engaged in useful dissemination of information about their applications.

The draft paper mentioned above was only one of several offered to the reviewer. There have been some publications in recognised journals and conference presentations in several different settings. In addition, the project leader has offered workshops at all participating universities and several others. A website offers another avenue for dissemination.

6. The project team is collecting a great deal of information/ data about the effectiveness of the RSD Framework as a tool for encouraging development of students' research skills.

For each subject using the RSD Framework, a range of evaluative information is being collected. There is a survey about students' perceptions of their own research skills and the nature of research in their discipline which is given at the beginning and end of each subject. There is the standard evaluation of teaching survey in most subjects. Students are being interviewed some months after completing subjects which use the RSD Framework. Teachers have also been interviewed more formally than the conversations with the reviewer. In conversation with the reviewer teachers were able to present student work and discuss strengths and weaknesses and ideas for ways to address the latter.

7. The RSD Framework is a challenging document in terms of concepts and language.

In introducing the RSD Framework to teachers, it is important to offer it in a number of different ways: some people will prefer to see applications before studying the RSD Framework in detail; others may prefer to try to conceptualise their own practice as a researcher in terms of where they "fit" in the RSD Framework.

The RSD Framework looks linear and hierarchical but that appearance is misleading. One notion that the reviewer found helpful is that anyone may operate at any level of autonomy in different facets at different times, depending on their prior knowledge and skills. For instance, a small child may frame her own "research" question (Level 5) but not have the communication skills to describe what she learned from guided observation (level 1 or 2). More relevantly, a postgraduate student undertaking coursework in a new area may need a great deal of structure and guidance to develop methodologies and execute a project, even though they may have been able to operate quite autonomously in most or all facets of research in their original field of study.

Another misconception is that each level is more academically rigorous than the preceding level. That is not necessarily so as work at level 1 (closed enquiry, no autonomy) can be rigorously executed and assessed. The interplay between rigor and autonomy is complex. Ultimately, a successful researcher will become autonomous and rigorous. In practice, when developing marking rubrics, some teachers are finding it useful to rewrite the descriptions of levels to emphasise rigor more than autonomy.

Student interview transcripts suggest that even those students who were able to identify benefits from RSD interventions in a previously-studied subject, may not have fully

understood the RSD Framework or indeed, remembered it. In conversation, teachers often remarked that one of the difficult decisions was how to present the RSD Framework, whether to show it in its entirety, in parts, or not at all, and whether to have students help with modifying it for particular contexts. One teacher suggested that students need to “live and apply” the Framework before it means much to them.

8. For many reasons some students will not respond to even the most carefully developed, fully integrated applications of the RSD Framework.

Student interviews with students who were “non-improvers” suggest that there are a great many reasons for students’ failing to become motivated to put the necessary effort into high achievement on research-oriented (or any other) assignments. While many students respond well to the sequenced and structured tasks and feedback informed by the RSD Framework, some will not be excited by it. Indeed, they may be put off by it, as it is intellectually demanding when they would prefer to have things easy (because of personal problems or indecision about their preferred future or whatever). This is true of every innovation or intervention this reviewer can think of and does not suggest a failure of the RSD Framework, just a recommendation that participants in the project be realistic.

9. In a number of different ways the RSD Framework is proving to be a useful tool for teachers. Project participants are enthusiastic about its benefits.

In conversations with teachers, the reviewer noted their enthusiasm about the way the RSD Framework helped them to explain research within the context of their own discipline and to guide students’ learning in a logical sequence within a particular subject. In effect, it helps to show that research is part of everyday living and that the skills are constantly valuable.

The RSD Framework helps identify an appropriate level at which to set tasks; several teachers realised that they had been expecting too much of students.

It also demystifies the criteria used for grading students’ work; teachers commented that they became aware of the reasons for their apparently subjective impressionistic judgments and were better able to explain to students why specific grades were awarded.

Some Questions and Suggestions for the Second Year

1. Some participants in the project are working alone or almost alone on campuses distant from Adelaide. Do they need more support and interaction with other participants?

We have noted that some participants are much more advanced in their adoption of the RSD Framework than others. Do the relative newcomers, no matter where they are, need more support and interaction with other participants?

A possibility would be an email list (or more sophisticated chat room or bulletin board or Wiki) for all participants. There is a strong expectation that participants will write descriptions of their innovations and evaluations of the results for conferences or publication. Drafts should be circulated to all.

There are reference group meetings (via internet) planned. Are they frequent enough? Do they include all participants? Do they allow sufficient exchange of information and discussion in such a large group?

The annual HERDSA conference is probably the most appropriate place to describe innovations of this type to an audience from a range of disciplines. Could the majority of participants meet there? Dissemination is a project goal that would be addressed; in addition, project participants would have an opportunity for longer conversations with each other. Is there a possibility of financial aid to encourage such a gathering?

A meeting in Adelaide would be a less costly option since the majority of participants are based there.

2. There is a great deal of data being collected. Project employees raised some concerns about how they were going to process and report this data.

It makes sense for each subject involved in the project to use their own survey and interview data to assist with evaluation of specific interventions. It will be important to have reports (not necessarily for publication) from all participants.

Is it worthwhile trying to aggregate the interview and/or survey data from different subjects to get some overview of the project? Or are the subjects involved too different in terms of discipline, level, and stage of involvement with the RSD Framework?

It is important to have a clear plan for this material and a timetable for completion of the project.

3. Finally, thanks to the people in Adelaide who gave generously of their time, especially Dr John Willison. It was very useful to get a better sense of the work being done in this project at this stage. The final evaluation will no doubt be more meaningful as a result.

It would be extremely helpful if participants would include the reviewer on their mailing lists if they circulate reports, conference papers or articles about their use of the RSD Framework during the coming year. (If anyone wishes, I would be happy to comment on drafts; I have quite a bit of experience as an editor - PN.)