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Conceptions of Assessment and Feedback Project

Introduction

Assessment and feedback are at the heart of promoting student learning in schools (Ministry of Education, 1993; 1994; Carr, McGee, Jones, McKinley, Bell, Barr, & Simpson, 2003). While teachers, teacher educators, politicians, and policy makers may be aware of the multiple purposes of assessment and feedback typically espoused in text books, whether students are aware of these purposes and what aspects they prioritise needs more investigation.

Finding out what students think are the purposes of assessment and feedback is important because what they believe will influence the way they behave, study, and learn, and ultimately their academic outcomes (Elen & Lowyck, 1999; Vermetten, Vermunt, & Lodewijks, 2002; Könings, Brand-Gruwel, & van Merriënboer, 2005). As Pajares (1992) said, what students believe could be the "single most important construct in educational research" (Pajares, 1992, p. 329). Given the central role that assessment and feedback have in the education process, we need to develop a greater understanding of students' conceptions of the purpose of assessment and feedback and examine the effect that these conceptions have on academic performance.

This project aimed to investigate ways of identifying secondary school students' and teachers' conceptions of assessment and feedback. It outlines the modification of one inventory (Students' Conceptions of Assessment) and the development of two new inventories (Conceptions of Feedback and Conceptions of Learning). We also outline the design of a series of classroom activities that teachers can use to identify students' conceptions of specific assessment and feedback practices. Finally this project documents the development of teachers as researchers, highlighting some of the benefits and some of the difficulties.

Research aims and questions

The key research aims were to:

- develop ways of identifying students' and teachers' conceptions of assessment and feedback
- develop models which teachers can use to enhance the assessment and feedback process in secondary schools
- develop research based evidence for effective assessment and feedback processes which will raise teaching and learning outcomes
- support teachers to become researchers of their own assessment and feedback practices.

The research questions were:

1. What are students' and teachers' conceptions of assessment and feedback?
2. What impact do conceptions of assessment and feedback have on student learning outcomes?
3. What classroom activities can teachers use to identify students' conceptions of specific assessment and feedback practices?
4. How easy is it to become a teacher researcher and what factors contribute to the success of programmes like the TLRI?
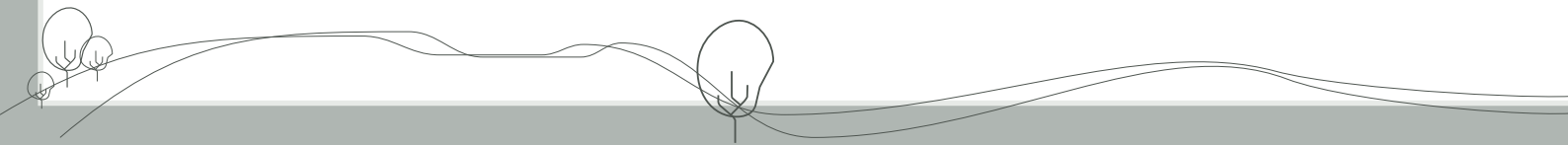
Research design and methodology

The research project took a mixed-method approach which included a variety of data gathering methods. These included: focus groups, semistructured interviews, questionnaires, written project notes, anonymous evaluations, brainstorming and teachers' selected resources such as post boxes, concept diamonds, questionnaires, feedback sheets, and assessments.

The teachers were encouraged to design their own tools to obtain a baseline measure of their students' conceptions about a particular aspect of assessment or feedback. They were then encouraged to create a classroom activity around a particular assessment or feedback aspect that they wanted to study and change and to measure the success of that activity.

The project team met approximately four times a year to discuss and share the teachers different action plan ideas, their progress, and provide support. Each teacher was also mentored by a researcher.

Summary of research findings

The questionnaire development

Three questionnaires were developed or modified, based on our student focus group data: students' conceptions of assessment; conceptions of feedback; and conceptions of learning. Students (N=250) from the schools involved in this TLRI study completed the questionnaires. The preliminary factors identified within each questionnaire are given in Table 1. In addition, these students provided standardised measures of curriculum-based learning in either reading or mathematics. When analysed, these data will show the relationship between conceptions of assessment feedback and learning and student learning outcomes. However, a larger sample was needed to provide a more robust analysis of the factor structure, and grants

TABLE 1 **Student conceptions questionnaire and their preliminary factor structures**	
Questionnaire	**Factors**
Students' conceptions of assessment	Assessment is useful to students. Assessment is useful for teachers. Assessment has a public use. Assessment is fun. Assessment is irrelevant.
Conceptions of feedback	Feedback comes from teachers. Feedback motivates me. Feedback provides information. Feedback is about standards. Qualities of good feedback. Help seeking.
Conceptions of learning	Learning is knowledge gain. Learning is using information. Learning is understanding. Learning is personal and community growth. Learning is an ongoing continuous process. Learning requires effort. Learning as developing knowledge objects.

from the University of Auckland Faculty of Education and School of Teaching, Learning and Development have allowed a follow-up study of more than 800 in a nation-wide survey of secondary students on all three instruments. The data from this survey have yet to be analysed.

Action research

The teachers in this project all developed classroom activities that they could use to identify students' conceptions of specific assessment and feedback practices.

In some cases, the teachers' findings from the initial data collection led them to design classroom activities to address common misunderstandings. For example, the teacher who worked on close reading found that her students had poor understanding of some of the key close reading terms, so she designed a series of activities to improve their close reading skills and measured the effectiveness of these activities on completion of the unit. By the end of the intervention all the students had shown an improvement of their close reading skills.

All of the activities were successful to some degree, although teachers had difficulties because of poor class attendance and lack of comparable pre and posttest data. Detailed summaries of each teachers' study can be found in the Appendix of the full report.

Becoming a teacher–researcher

Throughout the course of this two-year project, we documented how the teachers felt about becoming teacher–researchers. A summary of the things the teachers found beneficial and inhibitory are given in Table 2.

Limitations of the project

The findings of this project are limited by the sample size. The questionnaires and the teachers' classroom activities would need to be trialled on a larger number of students before the findings can be generalised. In particular, each activity has only been trialled in one classroom. To determine the effectiveness of each activity, further classroom trials are required. The questionnaires have recently been administered to a larger, nationally representative sample, but the data from the survey are yet to be analysed.

Building capacity and capability

The questionnaire development

It is assumed that the production of robust measures of students' conceptions of assessment, feedback, and learning together with New Zealand norms, plus an understanding of how those conceptions relate to practices and outcomes, will have benefit for New Zealand teachers. The Teachers' Conceptions of Assessment inventory (Brown, CoA-IIIA) is already available for use from Dr Brown's website, and

TABLE 2 Teachers' views on the benefits and difficulties of being a teacher–researcher

Benefits	Difficulties	Support needed
Greater understanding of students and their opinions	Doing research is hard work	From school, to be involved in the project
Motivating for students and teachers	Finding time to do research	From school/colleagues, to try new ideas out
More engaged with students and their needs	At times, swamped with work responsibilities	From researchers, to design studies
Greater use of assessment and feedback strategies	Finding time for extra reading, and understanding academically couched literature	From researchers, to analyse and write up findings
Awareness that everyday classroom practice can be seen as research to inform practice	It is hard to conduct research with a class that has irregular attendance	Student buy-in was critical to the success of the teachers' research project
Increased understanding of assessment and feedback processes	Knowing what to do in designing and conducting a research project	
Increased confidence as to how to find out what teachers don't know		
Team/peer meetings for collegial support and inspiration		

it is anticipated that the student instrument will be released in the same way once the nationally representative survey is completed. It is expected that once we understand how conceptions relate to outcomes, it will be possible to experiment with innovations in professional development.

Teacher action research

Research has shown that students seem to learn more when they know that teachers understand their perceptions (Bishop, Berryman, Tiakiwai, & Richardson, 2003). Certainly the development of tools to tap student conceptions about assessment and feedback, and the teachers' engagement in a wide range of activities within the project have provided these teachers with deeper insights into students' perceptions of assessment and feedback.

The collaboration between teacher–and university–researchers on developing instructional activities to identify students' different conceptions of assessment led to improved communication between the teachers and students—they served to open up communication pathways.

Becoming a teacher-researcher

As Black et al., (2003) noted in regard to the teachers they worked with who were implementing a range of formative assessment strategies and practices, each followed "different trajectories of change—so that not only their starting points, but also the routes they travelled were different" (p. 83). This was the case in this project. Teachers' engagement in small-scale research projects, grounded in their personal interests and needs, enabled them to gain insights into not only their students' conceptions but also their own conceptions and how these played out in practice. These insights provided the impetus for self-reported changes to practices in a number of instances.

Conclusions

This two-year TLRI study has enabled teachers and researchers to gain a greater insight into students' conceptions of assessment and feedback. In particular, we have developed three questionnaires that can be used by other teachers to find out what students think is the purpose of assessment, feedback, and learning. We have also developed classroom activities that teachers can use to identify students' beliefs about different types of assessment and feedback practices. Finally, we have documented the process by which teachers became researchers. We found that while the teachers feel their practice has improved as a result of this study, conducting research was not easy and could not be done without the full support of schools and mentoring from experienced researchers.

Project publications and outputs

Brown, G. T. L. (2006). *Secondary school students' conceptions of assessment: A Survey of Four Schools.* Conceptions of Assessment and Feedback Project Report No. 5. Auckland: University of Auckland.

Brown, G. T. L., & Hirschfeld, G. H. F. (2005, December). *Secondary school students' conceptions of assessment.* Conceptions of Assessment and Feedback Project Report No. 4. Auckland: University of Auckland.

Brown, G. T. L. (2005, September). *An exploration of secondary school teachers' conceptions of assessment: A TLRI study.* Conceptions of Assessment and Feedback Project Report No. 1. Auckland: University of Auckland.

Brown, G. T. L., Irving, S. E., Peterson, E. R., & Hirschfeld, G. H. F. (2007, August). *Students' conceptions of assessment: Studies of New Zealand secondary students within the Conceptions of Assessment and Feedback Project.* Paper to be presented at the 12th Biennial EARLI Conference, Budapest.

Dixon, H., & Haigh, M. (2006, November). *Becoming and being a teacher-researcher*. Paper presented at Asia Pacific Education Research Association International Conference, Hong Kong.

Haigh, M., & Dixon, H. (2006). *Becoming and being a teacher researcher*. Conceptions of Assessment and Feedback (CAF) Project Research Report No. 6. Auckland: University of Auckland.

Hellyer, C. (2006, October). *Close reading and asTTle*. Paper presented at the Assessment for Learning Conference, Palmerston North.

Haigh, M., & Dixon, H. (2006). *Becoming and being a teacher-researcher*. Conceptions of Assessment and Feedback (CAF) Project Research Report No. 6. Auckland: University of Auckland.

Irving, S. E., & Peterson, E. R. (2007). Secondary school teachers' conceptions of assessment and feedback. Manuscript in preparation.

Irving, S. E., Peterson, E. R., & Brown, G. T. L. (2007, August). *Student conceptions of feedback: A study of New Zealand secondary students within the Conceptions of Assessment and Feedback project.* Paper to be presented at the 12th Biennial EARLI Conference, Budapest.

McKay, A. (2005, December). *What's important and what helps me make progress: Students' views on assessment*. Conference presentation at the New Zealand Association in Educational Research Conference, Dunedin.

Peterson, E. R., & Barron, K. A. (2005). *A sticky situation: A case for Post-it® notes: "I've been using stickies a lot (in my classroom) ever since you guys came into my life."* Conceptions of Assessment and Feedback (CAF) Project Research Report No. 2. Auckland: University of Auckland.

Peterson, E. R., & Barron, E. R. (2006). A sticky methodology: Using sticky notes to help facilitate focus groups. In B. Kozuh, R. Kahn, A. Kozlowska, & P. Krope (Ed.), *Description and explanation in educational and social research* (pp. 89–100). Los Angeles, CA: UCLA Press.

Peterson, E. R., & Irving, S. E. (in press). Secondary school students' conceptions of assessment and feedback. *Learning and Instruction*.

Peterson, E. R., & Irving, S. E. (2006). *Secondary school students' conceptions of assessment and feedback*. Conceptions of Assessment and Feedback (CAF) Project Research Report No. 3. Auckland: University of Auckland.

Peterson, E. R., Irving, S. E., & Brown, G. T. L. (2007, August) *Students' conceptions of learning: Studies of New Zealand secondary students within the Conceptions of Assessment and Feedback Project*. Paper to be presented at the 12th Biennial EARLI Conference, Budapest.

References

Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2003). *Assessment for learning: Putting it into practice*. Maidenhead: Open University Press.

Bishop, R., Berryman, M., Tiakiwai, S., & Richardson, C. (2003). *Te Kotahitanga: The experiences of Year 9 and Year 10 Maori students in mainstream classrooms*. Ministry of Education, New Zealand.

Carr, M., McGee, C., Jones, A., McKinley, E., Bell, B., Barr, H. et al. (2003). *The effects of curricula and assessment of pedagogical approaches and on educational outcomes*. Hamilton: The University of Waikato: Research Report for the Ministry of Education.

Elen, J., & Lowyck, J. (1999). Metacognitive instructional knowledge: Cognitive mediation and instructional design. *Journal of Structural Learning and Intelligent Systems, 13,* 145–169.

Könings, K. D., Brand-Gruwel, S., & van Merriënboer, J. J. G. (2005). Towards more powerful learning environments through combining the perspectives of designers, teachers, and students. *British Journal of Educational Psychology, 75,* 645–660.

Ministry of Education. (1993). T*he New Zealand Curriculum Framework*. Wellington: Learning Media.

Ministry of Education. (1994). *Assessment policy to practice*. Wellington: Learning Media.

Pajares, F. (1992). Teachers' beliefs and educational research: Cleaning up a messy construct. *Review of Educational Research, 62,* 307–332.

Vermetten, Y. J., Vermunt, J. D., & Lodewijks, H. G. (2002). Powerful learning environments? How university students differ in their response to instructional measures. *Learning and Instruction, 12,* 263–284.

The full reports of all TLRI projects are published on the TLRI website (www.tlri.org.nz).

Lead authors and researchers

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