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Capturing immediate feedback in the classroom: An embedded action research study

Kay Fielden

UNITEC Institute of Technology, Auckland, New Zealand

kfielden@unitec.ac.nz

May Goh

Auckland, New Zealand

danmay@ihug.co.nz

Abstract: This paper explores emergent results from one action research 'project within a project' (PWP). A large action research project (ARP) was conducted in semester 1, 2002 across two schools within the same faculty. Whilst the large ARP straddled six different curriculum areas, this paper describes the research process and emergent results from PWP. The common content focus for the ARP was a set of in-class activities. An extra standard classroom activity was introduced for eight weeks across six different curriculum papers ranging from certificate to masters level. Team members recorded time spent on planning, executing and analysing the extra activity for the extra classroom activity as well as individual perceptions of extra time spent with this activity. The common intent focus for staff participating in ARP was to evaluate multiple dimensions of time related to teaching, learning and research. Common outcomes for the ARP team showed: teaching practices improved through team collaboration; students' barriers to learning were discovered earlier; research skills were enhanced; research in the classroom informed teaching and learning; time management improved through the sharing of effective practices; resentment towards organisational time pressures was reduced as problems were discussed and solutions found within the team; and individual time management improved through shared knowledge and peer pressure to perform. Emergent results from the PWP showed that this particular in-class activity provided unexpected benefits for both the students and the lecturer through the richly interconnected feedback loops established within the class as a result of the ARP in-class activities.

Keywords: communication; feedback; emergent results

Introduction

The ARP reported in this paper is a 'project within a project' (PWP) conducted within the communications discipline. Reflection on common in-class activities and the discipline required to

record both research facts and reflections are skills that evolve with research practice. Research skills seminars for ARP participants were conducted before the PWP commenced, but these skills were not practised prior to commencement. The communication lecturer (CL), however, demonstrated an innate ability to analyse, reflect and act on feedback received from each activity cycle (Table 2) in using in-class activities. CL also had the ability to reflect on what was happening, and, as her awareness grew, so the quality of her reflections improved.

In this paper, the context of the (PWP) for the CL (Figure 1) within the ARP, the organisational setting, the nature of emergence, participatory research and the literature (both time and feedback) is described. The six action cycles (AC) for CL are then discussed concluding with emergent results obtained by CL.
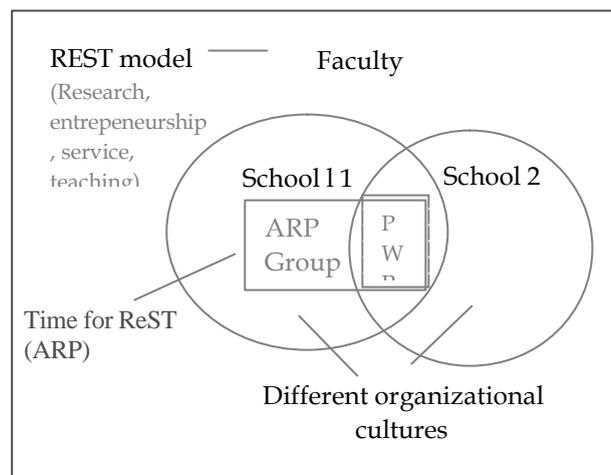
Figure 1 The 'project within a project' (PWP) in context

Literature review

A disciplined approach to conducting the larger ARP was required. In order to do this it was necessary to explore time-related issues as well as the importance of feedback in the classroom.

Time-related issues
In her study on teachers' interpretations of time Collinson (2000)found that, for teachers, time was multi-factored, complex, dynamic and non-linear. Collinson discovered a perceived need for a combination of discretionary time for staff to learn on their own and collaborative time to share. She also found that a combination of common time and common purpose were much more likely to increase sharing than either one alone. Pressure was felt by some teachers to extend their professional and personal time to accommodate individual learning and dissemination of knowledge. These conditions have been incorporated into the ARP(Fielden et al., 2002). Friedman (1999) discusses time as a one-way flow with both individual and organisational expectations. The ARP echoes this one-way flow in the repeating activity cycles. Incorporated in the objectives for the ARP were both individual and organisational time expectations.

Feedback

Tanian and Ryan (1999) suggest that feedback is vital for developing sound communication skills and that skill development is incremental and evolutionary. They also maintain that students need instruction in peer evaluation particularly in giving positive and constructive feedback.

Tapper (1999) suggests that communication skills need to be a part of the curriculum that is assessed – including peer assessment. Whilst the PWP did not directly include assessment in the in-class activities, all communications activities including feedback were directed towards assessment items. Bailey and Vardi (1999) discuss the merits of iterative feedback on written communication but do not mention the importance of in-class immediate feedback (incorporated in PWP). Brass and Pilven (1999), on the other hand, stress the importance of timely qualitative feedback for both students and teachers in the learning process. The emergent results from this PWP reinforce this finding. Lyons and Milton (2002) suggest that two-way intrinsic feedback between students and teacher is an integral part of effective teaching and learning. Fells (2001) maintains that learning requires frequent feedback. Peer learning activities (Sampson, Boud, Cohen, & Gaynor, 1999) have also been incorporated in the PWP in the four-way feedback patterns discovered (Figure 2). Santhanam, Martin, Goody, & Hicks(2001)suggest that feedback on teaching from student to teacher closes the loop for improved teaching practice.
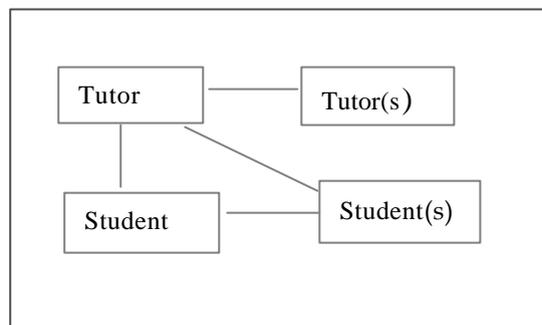
Figure 2: Four-way feedback patterns

Projects within projects (PWP)

This multi-layered, multi-dimensional multi-disciplinary project spanning the areas in Table 1 incorporated both clear boundaries in research methodology design (Table 3) and sufficient flexibility for ARP members to adapt in-class activities and research reporting required to individual teaching and learning styles. This was important, as only one member of the group was an experienced qualitative researcher. One other member had had previous experience working in another research project team.

Table 1: Curriculum areas, levels and delivery modes

Curriculum Area	Level	Delivery Mode
Problem solving	Certificate (pre degree)	All classes, once a week
Communication	Diploma (pre degree)	One class, twice a week
Systems Analysis and Design	Second year Undergraduate	One class, once a week
Data communications and networking	Third year Undergraduate	Two classes, once a week
Mathematics	First year Undergraduate	All classes, once a week
Research methods in computing	Masters	Block sessions, once a month

Action research (AR)

The original methodological vision for ARP was that this would be a qualitative research methodology that combined a core focus group, participant observation, open-ended interviews and individual time-keeping diaries: a research methodology (RM) which would be closer to participative inquiry than formal action research. The actual RM that evolved through ARP group interaction was more closely aligned with a formal action research approach. This became necessary in order to make best use of the time available – a recursive theme in this project! Formal data templates were developed within ARP to gather time data, set in-class questions and to give in-class feedback (Table 2). These templates allowed the group to standardise while allowing individual differences.

Table 2: ARP project data template

Name: _____   Class_____   Class No_____
Class Times: _____
Class Place: _____   Class Size_____   Responses_____
No of questions each session_____

Activity Cycle

	Tell Class	Give Question	Do Analysis	Give Feedback
Date				
Time				

Reflection on Analysis and Feedback

Date: __/__/__   Time: _____
Your Feelings: _____
The Unexpected: _____
Summary: _____

The actual cycle adopted is shown in Table 3.

Table 3: Activity cycle for ARP

Step 1: ARP   - form group
Step 2: Group   - activity, design templates, data sheets, feedback format, reflection
(Step 3: Team member   – set own in-class questions
Step 4: ARP   – discuss questions across disciplines, share ideas, revise questions
Step 5: Team member   – revise own questions)*
(Step 6: Class   – team member tells own class about in-class questions (lesson 1)
Step 7: Students   – responses to in-class questions written (lesson 2) (Table 3)
Step 8: Team member   – analyse, interpret and prepare class feedback
Step 9: Class(or online) – deliver feedback to class (lesson 3 – or online)
Step 10: Students   – access feedback (if online))*
Step 11: Interviews   - with group members conducted by project leader
Step 12: ARP   – share results with group, fine tune process and reflect

Note: all activities were timed and ARP members kept their own time data
* Steps 3-5 repeated, steps 6-10 repeated

The first iteration took place for the whole group in step 2, at the planning stage, when action research skills were being acquired. A number of ARP meetings were held where ideas were shared, skills imparted, forms designed and redesigned. It was in these meetings that the nature of time and the benefits of feedback were discussed as well as the core idea of a common classroom activity to give this ARP a focus. In steps 3-5 there were iterations for individual ARP members as in-class questions were prepared to meet project guidelines. Once there was group-agreement, individual members followed steps 6-10 in the sequence specified. Steps 6-10 represent the six individual projects (PWPs) within the umbrella of the larger ARP project. The frequency of ARP group meetings was reduced during steps 6-10, as focus was devoted to data collection, exercise preparation and class feedback. Individual variations occurred with these iterations. However all members kept their own data templates (Table 2) and individual activity cycles as the semester progressed.

Emergence

Emergence is the principle that whole entities exhibit properties that are meaningful only when attributed to the whole, not to its parts (Bechtel & Richardson, 1993). Every model of a human activity system exhibits properties as a whole entity that derives from its component activities and their structure, but cannot be reduced to them. Emergence can also appear when original expectations are not met, unusual events 'arise' or there is a growing awareness of the current context. In the PWP both the unexpected and a growing awareness of context contributed to the emergent results.

The PWP: What actually happened in the communication course

Whilst eight sets of data were expected from each ARP member, CL recorded only six. It was decided that the richness incorporated in this data set was sufficient. The ARP data template (Table 2) asked each member to reflect on the following:
- own feelings;
- the unexpected; and
- a summary of the activity cycle.

The AR cycles
The following sections contain a summary of these six cycles (Table 5) for CL produced by viewing all comments irrespective of whether they were recorded as reflection, the unexpected or a summary.

Cycle 1
Observations:
1. Student participation high;
2. Exercise 'highly successful'
    - Became acquainted with students earlier in the course than previously;
3. Both CL and students benefited -
    - Students gained sense of accomplishment earlier
    - CL gained early feedback on demonstrated understanding and enthusiasm of students.
Unexpected results:
1. Sense of surprise that all students had brought and done 'homework' back to the next class;
2. The students were also happy to present their 'answers' orally – after some encouragement.

Cycle 2

Observations:

1. Surprised by how easily students took to the task without 'complaining';
2. Knowing students' prior knowledge helped CL to quickly focus on teaching content and strategy to engage them;
3. Exercise given 'on the spot' prior to the teaching session that day.

Unexpected results:

1. How much students actually knew about the topic – some through hands-on working knowledge and others merely an intelligent perception;
2. 'Feedback' helped CL question and interact with students more meaningfully;
3. CL able to clarify and deepen students' knowledge without incurring any extra time;
4. Break time utilised to make a quick analysis - enabled CL to credit students for some quite accurate insights into the topic.

Cycle 3

Observations:

1. CL glad to read how much students said they had learnt and benefited from team activities;
2. Took CL a long time to go through the students' reflective logs;
3. CL felt that only about a half of the students had some real success in applying specific communication concepts to illustrating group dynamics;
4. Two students mentioned that forcing them to reflect made them learn and feel that they had accomplished something;
5. Exercise tough for two ESOL students and another two students who suffered from memory lapse and dyslexic difficulties.

Unexpected results:

1. Students who filled their log during class-time fared better as less information was lost;
2. Students gave very open, honest and frank evaluations about achievements and what they could do better – of themselves and their group members;
3. Great sense of intimacy gained by CL who felt as if it was almost like reading students' diaries.

Cycle 4

Observations:

1. Time lapse of 1 1/2 weeks before detailed feedback given;
2. 8/10 students showed good understanding of negotiation principles. Whilst this was evident in the students' scripts, it was not so in the role-plays;
3. Although cases were imaginative and well written, more than 50% of students were not able to deliver without some form of reading/script holding and referral;
4. Having a full script gave students a false sense of security.

Unexpected results:

1. Students under-performed - despite sufficient time (two weeks) given to prepare;
2. More able students missed a couple of sessions when planning instructions given;
3. Written script submitted along with role-play helped CL to more accurately assess;
4. More time taken in matching role-play with script;
5. CL had something else to fall back on – not just what was seen/ heard at delivery time.

Cycle 5

Observations:

1. Lengthy exercise (too long), students plodded on - but not always focussed;
2. Pairs of students completed faster;

3. Students used exercise as self-test on where they stood in relation to the 'model' put up for them.

Unexpected results:
1. 2/3 students (own initiative) tried scoring own exercise;
2. This self-analysis saved marking time for CL;
3. Complete mini-exercise gave students confidence in their assignment – have done exercise once through;
4. CL able to quickly identify areas of weakness and addressed these during the same class time;
5. In-class activity worked well as a tutorial by itself.

Cycle 6

Observations:
1. Students took longer than expected on in-class activity;
2. Exercise a 'breather' before end of class;
3. Forced students to think and focus in preparation for assignment;
4. Only two students stated the fear of forgetting the words;
5. One student (ESOL) misinterpreted the question to mean countering the fear instead of identifying it.

Unexpected results:
1. Students unfussed about doing in-class activities;
2. Exercise occupied considerable class time in this cycle - had students giving the solutions peers;
3. Some students' ideas creative - added to range of solutions;
4. Good that students had ownership of solutions;
5. Giving feedback at the next tutorial gave CL time to think about strategies to help students individually and as a class;

Table 4: Communication lecturer's four-way feedback over six action research cycles

Cycle	CL->student(s) (ST)	Student(s)->CL	Student->student(s)	CL->lecturers
1	- All ST relate 'theory' to life. - Most focus on barriers not solution. - Few could not see specific barrier.	- 'Forced us to apply what we learnt in class to our daily lives. Presenting in front of the class trains our oral skills, though it was nerve-wrecking for a first tutorial.' - 'It was good getting to know each other'.	- ST applauded each other before and after the presentation. - Only 1 or 2 ST asked the presenter questions after each presentation	- Saw relationship between written and oral – using written helped with smooth oral delivery - Ex served as an icebreaker - Taught CL not to construct a 2-part question in a single sentence - Helped CL to quickly sort ST
2	- All ST reflection limited had right and clear ideas for effective reports	- 'We had previously thought that reports were just a systematic collation of information. Knowing that it helps in decision-making and problem-solving makes it important & useful management and marketing tool'	- Less opportunity for direct interaction. Feedback indirect – - ST built on each other's knowledge during teaching session	- Knowing what ST already knew about topic helped CL quickly clarify and extend students' understanding. This resulted in a more interactive teaching session
3	- ST reflections on team dynamics tended to be more generic than specific	- ST asked for: - log sheets to be submitted progressively – a sample for fill-out for immediate feedback. – time to be allocated(compulsory) for recording after each team activity - ST said they learnt 'problem-solving in a team & cultural sensitivity' - ST unanimously agreed that exercise helps them 'think of what went on, instead of just forgetting about it' - Other comments – 'interesting to hear others' views' – 'increases class cohesion' – 'learning to use others' strengths provides balance & shortens learning curve' – 'interaction is important'	- ST were open to written (not oral) feedback of each other: few would say orally what they have written about their team-mates	- Two groups of ST needed more attention: - ESL, dyslexic - This exercise would work better if log sheets were documented immediately after the activity
4	- Most ST had difficulty viewing a negotiation issue from the other person's perspective. - ST needed to maintain a balance of interests to effect a win-win situation	- ST feedback was insightful – exercise would work better if 2 ST collaborated to script a single scenario but played different roles in the case	- ST were obviously working well with their partners (produced creative & imaginative scenarios). Motivation seemed to have climbed - each was 'sharpening' the other - ST gave oral & written feedback to each other after the role play	- ST needed an equal amount of time scripting and rehearsing to succeed, since each person's success also depended on the other. - CL could assess them more accurately because of written script
5	- Brought ST up another notch by showing them the way to form a deeper level of analysis and proposing solutions that were both logical & creative	- ST used exercise as a 'self-test' to see how they measure-up to model provided (2/3s on their own tried scoring it) This self analysis meant CL needn't spend time marking it	- Feedback apparent for ST who chose to work in pairs. Brainstorming and division of labour enabled them to be more effective and efficient in completing the task	- Giving individual or paired oral and written feedback helped to strengthen CL's relationship with STs
6	- There was little that CL needed to add – since ST covered the spectrum of problems and solutions. - ST were urged to practise their	- ST were open & frank about their fears – most had more than one major fear. Two students gave feedback outside of exercise with written comments; 'encouragement & support in a group is important' - 'Everyone is learning from each other'	- ST were 'generous' with their feedback (oral & written) ST realise they share a common pool of fears in giving presentations. Participation level high. A range of	- T realised cannot assume ESL ST understanding – need to check - It was important that ST own their own solutions - Helps CL to plan the session more focussed on

	presentation in class		solutions were given for every problem identified	ST needs - Exercise strategic in helping ST identify particular fears -work on them before the presentation

Results from the in-depth interview (with ARP co-ordinator)

In the in-depth interview CL stated that she was surprised to learn that ESL students had misinterpreted material taught. She recognised that the in-class exercise provided classroom variety and that most importantly, students had gone from passive-to-active classroom participants.

A rich interconnected spider web of feedback data

It was discovered that the written in-class exercises provided channels for a four-way feedback process: tutor-student(s) student-student(s), tutor-student(s), Tutor-tutor (Table 5). This feedback provided a rich relational component (Figure 2) in which written and oral feedback elements were intertwined in-class. This provided meaningful immediate reinforcement for students and CL in-class deepening learning for everyone.

What went well

For CL, the richness of the feedback was the biggest advantage in taking part in the project. She also received personal notes from some of the students along with their answers to the in-class questions. These provided a wonderful way to improve relationships in class. Students also provided suggestions to improve classroom practice. Students appeared much more willing to *write* their answers, personal comments and tutor feedback than to *say* these things in class. All students became engaged with this process that was empowering for them; they felt that they were being heard.

Time reflections from the in-depth interview

CL reported that as an ARP member she had become more aware of time: "I can work time differently now" and "I am aware of needing a different mindset". She recognised that class time was a scarce resource: " you can't add more to it". Time outside of class was flexible. She also reported that "deadlines caused me to focus and to prioritise tasks".

Like all the ARP members CL felt the pressure of engaging in research. She is employed on a part-time basis and the extra time required for research was taken from the family: "I spent less time with my children" and by focussing on quality not quantity time. In common with the other ARP members CL found it difficult to tell the difference between time- and content-related data: "I judged myself on how long things were taking and was not spending too much time on any one task". Participating in the project gave her a "deeper consciousness of being able to do a lot more for the students".

Feedback reflections

CL concluded that:
1. All feedback patterns (figure 2) occurred in every cycle;
2. Students were more comfortable giving written than oral feedback, especially when this required them to express opinions and feelings;
3. A turning point happened in cycle 3 – students were more comfortable with open feedback, both to each other and with CL;
4. From cycle 4: students discovered the pleasure of learning via teamwork or pair-work;
5. From cycle 5: students exhibited more independent learning. Students were talking more and CL assumed the role of encourager and facilitator more than teacher;
6. In cycles 5 and 6, students started giving feedback 'outside' of what was being asked;
7. Level of trust was especially evident from cycle 4; and
8. Level of feedback also depended on level of student interest in the activity.

Where to next?

As a result of the knowledge gained from both the action research and feedback patterns that occurred within the communication class, assessment items have been changed to incorporate more immediate feedback. It is hoped that by providing more immediate feedback that is tied to assessment items, the scarce resource of 'classroom time' will be utilised more effectively and that students' learning and retention of knowledge will improve.

Conclusion

Attempting this ARP with 'projects-within-projects' in which different types of data were collected, using neophyte researchers, was too ambitious. An unexpected and very welcome outcome was the rich dataset on multiple feedback patterns captured by CL discussed here. Her innate ability to analyse, reflect and act on information received within and across activity cycles (Table 3) resulted in an analysis of the many ways in which feedback occurs within this particular classroom and subject. From this PWP within the larger ARP, a rich set of information about feedback patterns has emerged.

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