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Authentic learning and assessment in a student learning laboratory: Letting students lead in the Mount Roland experience

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Abstract: *An unscheduled activity provided an authentic learning context when a group of students won a contract for the* Mount Roland-Developing a Destination *consultancy project, December 2010. A core team of three Bachelor of Regional Resource Management (BRRM) students, plus two recent graduates (BRRM and B. Tourism), completed the main research. Desktop analysis preceded community consultation, consisting of: a community survey; discussions with key tourism stakeholders, special interest and governance organisations; a public forum; and presentations to the sponsoring organisation, Kentish Council. The project was guided by a steering committee, representing five stakeholder groups.*

The public forum experience is described in detail as it represents a significant learning moment when the student team began to display high levels of confidence in their ability to complete the project to high professional standards. The three undergraduate students have been awarded credit for the unit KAA310 Emerging Issues in Regional Development. This unit investigates 'wicked problems', that is, complex ambiguous real world problems involving multiple stakeholders and with no easy solutions. The Mount Roland project presented such a contemporary wicked problem. It is suggested that a student-led learning laboratory in an authentic real world setting may fast track students towards the generic graduate attributes. A primary concern for the Unit Co-ordinator/ Supervisor was to find the right balance as a mentor, in order to allow students to take the lead, to stretch beyond their comfort zone and to enable deep learning to take place.*

University of Tasmania (UTAS) generic graduate attributes:* ***Knowledge* *and* ***communication skills*** *to deal effectively with professional situations;* ***Problem-solving skills****, in particular independent reasoning capabilities; and business orientations that integrate a* ***global perspective*** *and* ***social responsibility****.*

Key words: *student learning laboratory; deep learning; teaching as mentoring*

Introduction

A critical learning moment is described following Tomkins 2008), to open this paper. This is used as a focus for reflection on authentic learning contexts and the deep learning that is offered by such opportunities.

A brief overview of authentic learning is provided, before describing the relevant teaching unit KAA310 Emerging Issues in Regional Development. The fit of the Intended Learning Outcomes (ILOs) and assessment requirements to the project is outlined. This is followed by a discussion of the key challenges and learning points for such a project and concludes with recommendations for teaching.

Diary note: a significant learning moment

12 April 2011. Wet day; steady rain most of the day. Feeling anxious, as the Mount Roland study student team are to host a public forum at the Sheffield Town Hall. The Kentish Council Community Development Officer (CDO) indicates that about 70 people usually attend such events. As it is wet, we may get fewer than that. The purpose of the forum is to present proposals for tourism development on and near Mount Roland, based on the findings of a community survey conducted via the local community newspaper, the Kentish Chronicle.

The small community (population 6,056) is on the edge of the Cradle Mountain-Lake St Clair World Heritage-listed National Park, and has as its majestic backdrop and spiritual heart, the undeveloped Mount Roland. We expect the meeting might be fiery, as the community is divided on the development options, ranging from "do nothing" to a highly publicised proposal for cable car operations.

By the time the Mayor opens the proceedings at 7.00pm, there is standing room only. There are more than 90 participants, plus Council members, three members of the Mount Roland Steering Committee and the University of Tasmania (UTAS) team.

As the academic supervisor, my role is to set the ground rules and "to control" the process. Chris, the student project manager, is the main presenter. Chris is powerful, enthusiastic and passionate, yet balanced in his presentation. He stresses that the team does not have recommendations at this stage, and that we are here for an information exchange. He outlines what the team has done in the past three months, inviting further dialogue. His explanation of the findings is clear, and avoids getting lost in the detail of his rigorous analysis. In hosting the Q&A session, my role is made easier, as the audience listens respectfully to each viewpoint. Even our strongest potential critic is very gracious, and acknowledges that we "have shown … the path forward." Everyone who wants to say something has the chance to do so during the formal meeting, and many stay talking with the team until after 10.00pm.

The student team performs magnificently - it is a seamless flow as they move from welcoming participants, handing out information, answering queries, giving support to the presentation, turning slides, handling the roving microphone during question time, keeping notes, serving supper, engaging with locals, and staying until 10.30 pm to clean-up.

I feel elated that the team has made such a positive impression, which will not only serve to enhance their individual opportunities within the community, but also the profile of UTAS,

and the Cradle Coast campus in particular as it seeks to engage with the local community, and support regional development initiatives. Learning outcomes are clearly evident. The risk of accepting this project appears to be justified.

KAA310 Unit Co-ordinator – Mount Roland Project Academic Supervisor 12 April 2011

Authentic learning

Lombardi (2007, p.2) summarises the common elements of authentic learning. These elements include: actual or simulated "real-world" situations; "wicked" problems, that is, ambiguous, complex problems, with multiple perspectives; a committed team effort to complete tasks; the incorporation of reflection, self-assessment and performance review in the assessment process; student accountability for achieving deliverables; student capacity to influence the world outside the formal institution; and the opportunity to gain respect from peers, mentors and potential employers.

Stein, Isaacs, and Andrews (2004, p. 240) cite a range of different forms of authentic learning experiences, such as simulated "real-world" experiences where the students are protected from real-world risk (Brown et al., 1988 cited in Stein et al., 2004, p. 240), apprentice-type roles with mentors and situated within the real workplace (Lave & Wenger, 1991 cited in Stein et al., 2004, p. 240), and student-centred experiences that connect student views and experiences within the real world. In this sense there is an intersection of the student experience with "planned and enacted pedagogical context and events" (Tochon, 2000, cited in Stein et al., 2004, p. 240).

The Mount Roland study includes all of the elements noted by Lombardi (2007), and goes beyond the authentic learning forms cited by Stein et al. (2004). The project occurred outside of the timetable schedule; it was initiated by students; it involved undergraduate students at various levels of their study program and graduates; the students were mature age with varied professional experience; it was a funded project. There was a real-world risk relating to the professional reputation of the university, the academic integrity of the project and the students' capability to complete the project to a high standard accepted by the community, the commissioning Council and the university. As the project itself was not planned by the academic supervisor, there was the added dilemma of integrating the emerging project with assessment tasks of the unit KAA310 Emerging Issues in Regional Development.

The core study team consisted of three undergraduate students, one of whom was the designated Project Manager, and two recent graduates of the Bachelor of Regional Resource Management (BRRM) and Bachelor of Tourism degrees. The students are all mature age with professional work experience across local governance, journalism, tourism, hospitality, administration and technical support roles.

Following the students' project proposal, the Project Steering Committee Chair met with representatives of the Institute for Regional Development at Cradle Coast campus, indicating the preference to award the contract to the local student team, subject to academic supervision. This was supported by the Director of the Institute, Professor Janelle Allison, who is also the Cradle Coast campus Director and now the Pro Vice-Chancellor (Regional Development). The Mount Roland Project exemplifies the knowledge partnering approach between this regional university campus and its local community: "a new approach to knowledge and

learning, characterized by interaction, participation, and inclusivity; capable of mobilizing both formal and informal knowledge together across traditional boundaries; capable of being user-generated and demand-driven" (Allison & Eversole, 2008, p. 107).

The learning outcomes support the findings of Elliott, Rice, Trafimow, Madson, and Hipshur (2010), who indicate that students have a preference for being engaged in experiential exercises rather than conventional classroom lectures, and that the actual learning from experiential and class room lectures is about the same. In this case, we would suggest that the kinaesthetic active learning in the field, where students are leading the project, reflecting-in-practice, and on-practice (Schön, 1983; Wilson, 2009), and making adjustments to the project and decisions, with mentoring guidance from the supervisor and the steering committee, to be much more significant than teacher-directed classroom learning. This is due to the intensity and duration of the project, as well as the passionate engagement of the student team acting in the public sphere.

The study is an exemplar of a serendipitous authentic experience where deep learning is apparent as students learnt how to deal with emergent, unique, "non-textbook, professional problems" (Biggs & Tang, 2007, p. 148). The students developed high-level reflective skills and problem-based learning in a workplace context. The cycle of learning included planning, action and evaluation (Kolb, 1984, cited by Smith, 2011, p. 213) by both students and the academic supervisor. An overview of the teaching unit and how it connects with the project is now presented.

KAA310, aligned intended learning outcomes, assessment criteria and tasks

KAA310 Emerging Issues in Regional Development, is a capstone unit in the BRRM degree. The learning is focused on complex "wicked" problems, defined as those with multiple potential solutions and involve multiple stakeholders, and connected to wider global concerns (see Rittel & Webber, 1973; Skaburskis, 2008). They are usually investigated in an intensive studio format at the Cradle Coast campus in Semester 2. There may be up to three issues investigated, dependent on what is happening at that time. For example, the plan for 2012 is centred around the contested land use issues of the Tarkine.

The intended learning outcomes of KAA310 are to:

ILO 1. Explain how global issues impact on regions;
ILO 2. Compare and contrast multiple stakeholder perspectives in relation to a complex regional issue;
ILO 3. Evaluate and recommend solutions using regional science tools.

The assessment criteria are aligned with the intended learning outcomes as follows:

ILO 1

1. Identify a complex wicked problem for investigation in the local region.
2. Explain the links between global changes and the local context for this problem.
3. Present a plan in oral and visual form for investigating the local problem.

ILO 2

1. Apply at least two (2) regional science tools to investigate the wicked problem.
2. Present at least three different stakeholder perspectives on the issue.
3. Evaluate options and recommend one or more practical solutions for the problem.

ILO 3

1. Explain the rationale for selecting the particular wicked problem for investigation.
2. Describe the process of decision-making at key points in the investigation.
3. Link the personal responses to the investigation with the local and the global theoretical frameworks.
4. Summarise the key learning for the investigation.

In the scheduled class, these criteria are assessed with an oral presentation (20%, 15 minutes), a written project report (50% 4,000 words) and a reflective paper (30%, 1,500 words), with specific deadlines.

The Mount Roland study project: student led learning laboratory

The Mount Roland study project presented an ideal opportunity to achieve these learning outcomes. Usually, the learning tasks fit neatly into the learning 'box'. In this case, the learning parameters needed to fit the emerging project. The academic supervisor observed the students in action at many points: in team meetings; monthly meetings with the Project Steering Committee; presenting at the public forum, (see diary note above) and to the elected Councillors at a formal meeting. A project plan was prepared in early meetings and tasks allocated. On-line, phone and face-to-face communications were frequent for the duration of the project. Students used a range of tools in the project, including desktop analysis, community asset mapping, interviews with stakeholders, a SWOT (strengths, weaknesses, opportunities, threats) analysis, and a community survey, as well as the public forum.

The final report was much larger than that required for this unit. It grew to 9,000+ words on 40 pages, plus 20 detailed appendices on 127 pages); with the consideration of eight development scenarios and three key development recommendations and one core recommendation to develop a management plan for Mount Roland. The students also created a poster for the public forum and another one for Cradle Coast campus research week.

They each also completed a detailed evaluation of each part of the project, themselves and their team members. Their acknowledgement of what they had learned and how they would do this differently if they had the chance to do it again signified that deep learning (Biggs & Tang, 2007) occurred. As a team, they more than exceeded the assessment requirements for KAA310 and were awarded the same grade as a team. It should be noted that the Mount Roland Project in hindsight was much larger than would normally be expected of a project for this unit.

Due to the public nature and scale of the consultancy project, timing and funding issues, the academic supervisor provided significantly more input than would otherwise be expected for student work. An external editor fine-tuned the final report, that was released by Kentish Council to the community for comment. The outcome of this experience was successful for all concerned. The Council formally accepted the final report in September, 2011, and is taking

steps to implement the recommendations. One of the project stakeholders (Parks & Wildlife Tasmania- North-West region) has since partnered with a second-year UTAS student to prepare a scoping paper for developing a management strategy for the two Mount Roland Reserves under its jurisdiction.

The Mount Roland project turned out much better than expected and presented many significant teaching and learning moments. The public forum was just one part of the project. However, it is identified as a pivotal point, where everything could have gone horribly wrong. Fortunately, this was not the case. It was the point where the team moved from "forming and storming" to a "performing" team (Tuckman, 1965). In this sense, every team member worked in a complementary, harmonious and synergistic way, like the rowers in an élite rowing team. The positive feedback from the public and the Steering Committee gave the team an extra boost of confidence in their own competencies, and enabled them to push further boundaries of knowledge and skills in the next stage of developing alternative development scenarios and preparing the final report.

Challenges for the study

The study was completed between January to August 2011, with most of the consultation and analysis completed in January-April. A postgraduate student joined the team in April for the report writing. All students finally acknowledged that the writing task must commence from the beginning of the project, and templates and formatting established early in the project. The enormity of the task was under-estimated. A formal evaluation process was conducted with the student team and also the Steering Committee.

It is clear from the student evaluations that the learning value of such a project is very high, despite all the obstacles. They clearly articulated their learning points as well as the areas for improvement. One question was raised:

> *It might be worth debating the theories: Do you first give the project team a chance to make their own decisions, then fix the flaws, or due to time constraints is it best to tell the team up front so they don't have to do things twice when time is short? And would they learn as much that way*? (Student Project Manager)

A response to this is that students with certain types of learning styles (activist, kinaesthetic learners) will thrive on such experiences, but students with other learning styles (analytics and theorists) may have some difficulties (see Fleming & Mills, 1992; Honey & Mumford, 2006). The student who had the most analytical-theorist style would have preferred more clarity about the structure of the project, and worked best on detailed tasks with specific parameters. However, overall, students found that:

> *An opportunity to put theoretical learnings into practice was invaluable… I now understand the context of certain learnings, their application, and the need for certain knowledge. Practical assessment is already part of the BRRM so we would have got that anyway, but such deep involvement in such a large project gave me a thorough understanding* (Student team member).

> *As project manager, I was conscious of not over-burdening team members with detail and tasks….However, I overcompensated and team members at times felt isolated and directionless as, while I had a project map and knew what was going on, I had not*

explained that adequately to the team… In hindsight, brain storming sessions would have been a better format to encourage more responses. Lesson learned (Student Project Manager).

The key challenges for teaching can be summarised:

1. How to align an unexpected project with a set of intended learning outcomes and assessment criteria;
2. How to balance the supervision process so that the students are supported, yet encouraged to make key decisions within the project framework;
3. How to bring together a cross-section of students (undergraduate and graduate) who had not worked together as a team;
4. How to develop high performing team skills and project management skills;
5. How to negotiate and scope a project brief with shifting requirements for a Project Steering Committee representing five different stakeholder groups;
6. How to adapt to changing personnel issues, with the resignation of the main stakeholder representative, who was also the Chair of the Steering Committee, and three student team members within the first month of the project;
7. How to allocate hours and tasks, especially the report writing with a limited budget and limited time;
8. How to manage the expectations and perceptions of the main stakeholder group, Kentish Council and the Kentish community, who held polarised views on the project and development options for Mount Roland.

As a student-led learning laboratory, or experimental learning activity in the public eye, there was an element of risk and responsibility to ensure the project success, and the success of the students and the university, in their own eyes and that of the public.

Evidence of deep learning

Ongoing communication with students as well as a formal evaluation process and debrief celebration provided evidence of deep learning and alignment with the graduate attributes of knowledge and communication skills for professional working situations, high level problem solving skills, and a synthesis of global orientations with local social responsibility. The students were appreciative of the Project Steering Committee who:

had to do more hand-holding/ guiding /co-ordinating than they might have if a professional consultancy had undertaken this project and we thank them for their investment in us and the development of this set of skills in the community (Student Project Manager).

The students found value in working with a multi-disciplinary team and with different levels of students. In this setting, they learned that to be an effective team, all team members must have input, and not wait for directions by the designated leader. As well as learning to address internal tensions, the team learned to address conflict in an open, equitable way:

Finding … compromise was crucial to the success of the report and to presenting achievable, community-supported proposals. The report managed to achieve this – subsequent feedback revealed "conservationists" were satisfied that the proposals did not permanently "scar" the visual nature of the mountain, while "developmentalists"

could see a path forward that would overcome community opposition (Student team member).

Students learned the value of local tacit knowledge and how to elicit it and incorporate it into their findings to ensure ownership of the report by the community. Learning the value of project management skills, transparency of communication and systematic rigorous methods of investigation that are clearly documented were key learning points for students.

When asked, what would **you** do differently if you were involved in a similar project, student responses included:

1. Determine exactly what is required; obtain a more definite project brief, including the deliverables (final report), and central research question;
2. Consult with team members face-to-face; brainstorm more together; agree on a "team contract" at the start and communication channels;
3. Allocate project management administration tasks more explicitly; prioritise tasks and timelines for actions; balance the workload between team members; review weekly;
4. Involve report writer from the beginning. The time allocated for writing between the public forum and the draft report was too limited, leading to problems and gaps in the draft report;
5. Consult with the Steering Committee more frequently, especially on the survey questionnaire design;
6. Consider a wider range of community consultation methods.

The academic supervisor stepped from being a lecturer, purveyor of explicit knowledge, to becoming a mentor and guide, with the aim of supporting the whole process, and giving the space to the students to lead the project.

Teacher/ supervisor as mentor

As this was a pioneering situation, the students, the supervisor and the Project Steering Committee had to trust the process and work closely together to achieve a satisfactory outcome where the public deliverable was professional, academically well balanced, and accepted by the community. The supervisor did not know this group of students well and was new to UTAS. However, with a corporate background in Human Resource Management, and a decade of teaching experience, including Organisational Behaviour and Event Management in China, the supervisor was used to dealing with daily ambiguities and was confident about the ability of the students to accept the challenge of the project. There was also encouragement and support by peers and leadership at Cradle Coast campus to ensure a successful outcome.

Rather than be too directive, the supervisor gave some initial guidance, and then stepped back to allow the team to get on with it, but stressed her availability for consultation as required. The students commented on UTAS supervision:

- *Tried hard to coordinate all of us and give us direction and positive support;*
- *Guidance to the team was professional and understandable. It was never overbearing but nurtured the project at all times;*
- *Good guidance; not all was taken on board. Some stages perhaps could have had a little heavier hand to guide leadership* (Student team members).

Overall, the students believed that there was adequate supervision.

> *This would have been a far lesser result without it. Generally, we were left to make our own decisions during the research and development stages, and much closer scrutiny was provided in the report-writing stage, which was needed. That balance seems about right. At no stage did I feel abandoned or without support* (Student Project Manager).

In retrospect, more guidance needs to be given to a student team (no matter how mature and experienced they appear to be) in the initial stages. Team contracts and project management skills, as well as report writing skills and expectations for communication channels need to be made explicit at the planning stages. As there were three team members who did not complete the project and the designated report writer was not involved from the beginning, undue pressure was placed on the student Project Manager and the academic supervisor, leading to a period of illness and near burn-out for both. However, recovery was swift with increasing confidence of the Steering Committee and the Council in the Project progress, as indicated in an email to committee members:

> *Good Afternoon – just a quick email to confirm that …(the team)… presented the Mt Roland Draft Plan to the Kentish Council and it was received very positively. Chris's presentation was outstanding and covered the content and intent of the report in a very professional manner…. I was amazed how positive…(the team) were with respect to addressing the questions that were put to them last night and this gave all in the room great confidence in the report and its preparation and presentation…* (Chair Mount Roland Steering Committee 29 June 2011).

Allowing the students to lead and perform in the spotlight of public scrutiny has been vindicated. The trust that has developed allows a new and more equal partnership between mentors (teachers) and the mentored (students). Such feedback gives us the confidence to seek further opportunities for student learning laboratories. We would do it all again if the opportunity arises, but with some differences, to expedite the deep learning suggested by Biggs and Tang (2007) in authentic learning experiences and achievement of graduate attributes.

Key recommendations for teaching and learning

1. To maximise successful outcomes, students first need to demonstrate skills in project management and research. In the BRRM program, this means students need to complete KAA201 Workplace Internships, which introduces project management skills, and KAA203 Research Methods as prerequisites.
2. The academic supervisor needs ongoing support from peers and leadership to allow flexibility in the teaching program. The timing for such projects cannot be controlled by the University calendar. The risks in undertaking such a project need to be assessed and managed collectively by the teaching team.
3. The identified matching unit outline with intended learning outcomes, assessment criteria, and marking rubrics needs to be communicated to students at the beginning of the project. Equivalence of the alternative learning opportunity with a selected unit needs to be demonstrated, in this case KAA310 Emerging issues in Regional Development. Students must be able to exercise their choice about committing to such a time intensive project, outside of the normal scheduled delivery of the unit.

4. A workshop on project management skills, including budgeting and financial control; task allocation and team-working skills, plus report writing is required before proceeding on similar projects to ensure student commitment to professional and academic standards and the project until completion.

Summary

This paper has presented a serendipitous teaching project *Mount Roland: Developing a Destination* completed for Kentish Council. The learning outcomes matched the prepared aims of KAA310 Emerging Issues in Regional Development, a capstone unit in the Bachelor of Regional Resource Management, offered by the Institute for Regional Development at Cradle Coast campus. A significant learning moment has been presented as the turning point where students became a "performing" team (Tuckman, 1965) and demonstrated a high level of professionalism and confidence in their ability to achieve the project aims. Moving beyond safer types of authentic learning as outlined by Stein et al. (2004), this project contained all the elements of authentic learning as summarised by Lombardi (2007). In this student-led learning laboratory, the role of "lecturer -director" changed to that of "guide-mentor." The challenges and risks involved in such projects have been outlined, as well as the major learning points and recommendations for managing teaching and learning for future projects.

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