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# Implementing an interdisciplinary student centric approach to work-integrated learning

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This paper describes the implementation of an innovative approach to work-integrated learning using interdisciplinary projects within a university Faculty of Business. Further, it discusses the implementation of integrated and authentic assessments involving academic units in the marketing, urban planning and business communication disciplines. The authors reflect on issues involved with the introduction of interdisciplinary teaching and learning strategies, representing a shift from traditional silo approaches in tertiary education. The paper considers how a student-centered learning approach can support innovation in higher education. It highlights the importance of providing students with an integrated, *in situ* approach to learning within the context of their own learning institution. The paper concludes by asserting that universities can provide business students with authentic and relevant business problems, the opportunity to access the resources of the university and engage with staff and students across a range of disciplines to facilitate a project-based learning environment on-campus. (*Asia-Pacific Journal of Cooperative Education*, 2014, 15(4), 359-368)

Keywords: Interdisciplinary, authentic assessments contextualized learning, student-centered approach, generic skills and marketing research.

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The higher education landscape is characterized by increasing costs and competition. Udas and Thomas (2014) argue that this is partly due to the changing international demand for education both on and off campus, and the potential changes in government funding and shifting economic conditions in Australia. In response to these changes, universities, as business entities, are required to hone their commercial skills and abilities both within the administrative and academic spheres, to ensure the tertiary experience is accessible and relevant to student needs and to secure market share. This is increasingly challenging given the growing number of commercial entrants in the tertiary education market allowing greater choice between alternative producers (Brown, 2010). In addition, today's austere fiscal environment creates an opportunity for university leaders to think creatively when it comes to reinventing programs, redesigning campuses, and teaching and learning strategies. Within this context, universities provide an expanding array of business practices and disciplines relevant to their students. On the student side, there is a push to integrate learning ventures (partnering with outside organizations) to help students gain real world business skills. For business students, an alternative strategy can be considered in the mix. Universities are an amalgam of many disparate disciplines and professional functions and students can access the universities' extensive resources on campus and gain real world business skills. In addition, there remains considerable scope for students to gain interdisciplinary skill-sets through working with academic staff and students in other disciplines as outlined in this paper.

This paper describes a project-based learning approach across disciplines within a business school. The project created a series of authentic yet disparate assessments within a topic that was both familiar, and of immediate relevance, to business students. In many university

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business courses, students work within a highly contextualized and collaborative environment as they strive to master socio-cultural, economic and political forces that impact upon decision-making in the real world. Working alongside, and collaborating with, lecturers and students from other disciplines was a deliberate strategy to maximize the overall efficacy of the project, and to help foster team-working skills that authentically mirror the modern workplace. The authors identified the need for students to be able to communicate, collaborate and appreciate students' skills sets from other disciplines at the university level. This was in response to the assumption that the skill sets more accurately reflect the business world situation where students will ultimately be working. A curriculum that is interdisciplinary where ideas, skills and processes common to different disciplines are presented to students – in this case marketing, urban planning and business students' were involved.

A review of academic literature was undertaken that focused on interdisciplinary approaches to the curriculum. Specifically, literature on the project-based learning approach, active learning, and authentic learning concepts used to solve complex business problems and scenarios focusing on the higher education sector.

#### LITERATURE REVIEW

Whilst there is considerable literature in the fields of work-integrated learning and interdisciplinary studies, little has been published combining both approaches within the context of student assessment. Repko's seminal work (Repko, 2008) stressed the need for both scholars and students to be self-consciously interdisciplinary, and argued through detailed case studies that the approach was contributing something distinctive to society (p. xix). Students require an interdisciplinary perspective in combination with their main discipline to provide them with the broad perspective required for becoming an effective citizen and being prepared for the varied and transitional nature of working life. Interdisciplinary approaches are not new. DeZure (1998) provides a list of six reasons to pursue an interdisciplinary approach including demands for a more connected and coherent curriculum, and employers seeking graduates prepared for the reality of a multidisciplinary work world. Kysilka (1998) argues that an integrated curriculum allows genuine learning to take place as students are engaged in meaningful, purposeful activity and, knowledge in the real world is applied in an integrative fashion rather than ad hoc. An integrated curriculum is all about making connections, fusing subject areas, experiences, and real-life knowledge together to make a more fulfilling and tangible learning environment for students (Drake & Burns, 2004). Drake (2012) continues and enhances the interdisciplinary approach by focusing on multidisciplinary, interdisciplinary, and trans-disciplinary approaches thereby helping students connect essential questions to enduring understandings and ensuring broad understanding of a range of subject areas.

An interdisciplinary approach allows learners to develop critical thinking and meta cognitive skills through an understanding of the relations derived from different disciplines (Ivanitskaya, Clark, Montgomery & Primeau, 2002). Ackerman and Perkins (1989) argued that interdisciplinary learning could augment, instead of threaten, traditional teaching styles. This heralded an important argument and driver for adopting an interdisciplinary approach. The Carnegie Council on Adolescent Development (1989) project achieved a great deal to help interdisciplinary curricula enter the educational mainstream. Interdisciplinary learning has become an accepted approach for curriculum design albeit rarely used in the higher education sphere - a decision that affects the potential learning opportunities inherent in this

approach. It could be argued that the interdisciplinary teaching and learning strategy can be less effective than traditional approaches for building subject knowledge depth. However, the inherent advantages of the strategy lie in the development of higher-order skills such as applying, analyzing, generalizing and seeking meaningful connections between disciplines (Blair, 2011; Sill, 2001). Ivanitskaya et al. (2002) also argue that a sequential staged approach could be used to transfer interdisciplinary knowledge to real life themes such as community planning. What is required is the appropriate context, and a level of student involvement in the learning process to assist in the application of theory to practice.

Auster and Wylie (2006) referred to active learning as the application of theory and concepts combined with student involvement in the learning process. Examples include formulating problem solving exercises, small informal study groups, simulations, case studies and role playing games (Heriot, Cook, Jones, & Simpson, 2008). Classrooms can provide the context for engagement in the process of inquiry predominantly through an active learning process. It is essentially an inquiry process that balances problem-solving actions implemented in a collaborative context (Reason & Bradbury, 2001). Students work together in formalized collaborative teams using real work issues to authenticate their problem-solving skills. Combining an employability and entrepreneurial skills dimension appears to have positive effects on learning. A range of pedagogical and organizational processes necessary to support entrepreneurial competency and attributes rely on a range of different disciplinary and multi-disciplinary contexts (Volkman, 2004; Politis 2005). In addition, Bates, Hardacre, Gant, and Wilkie (1996) have found students report higher levels of learning involving the correction of misconceptions about workplace "reality," including the development of skills such as time management, self-confidence, and an increased awareness of career options.

Social interaction and collaboration are essential components of situated learning — learners become involved in a "community of practice" which requires certain beliefs and behaviors to be acquired (Lave & Wenger, 1991). As the novice moves from the periphery of a community to its centre, he or she becomes more active and engaged within the culture and eventually assumes the role of an expert. In this paper business students are tasked to work collaboratively with planning students using market research data. This presents an authentic activity involving social interaction and collaboration with subject disciplines that are not usually familiar to their sphere of activity or familiarity. Students move from being informed about the issue, engaged in a specific task on the issue and then briefing the next 'discipline' set of students on their findings. Students move from being workers to instructors or experts as the project moves through various stages of development.

Diamond, Middleton, and Mather (2011) describe a higher education cross-faculty learning model that helps create a supportive simulation model for authentic learning. The model presents how a simulated client-developer relationship provided a unique student learning experience. In (Diamond et al., 2011) students acted as subject professionals and the academic staff acted as the students' clients. This approach was a combination of simulation and problem-based learning, and provided an approach for cross faculty authentic learning. In the typology of simulations described by Lean, Moizer, Towler, and Abbey (2006) the model also fits into the category of interactive role-play. This approach is also consistent with international trends on best practice learning strategies to help position students at the centre of the learning process and develop teaching, learning and assessment strategies. Development of holistic and analytical skills is cited as an advantage of interdisciplinary courses (Blair, 2011). This holistic approach produces a more complete picture of the central theme and issues under discussion. More importantly, by-products include the options for

synergies to arise and an opportunity to consider a wider range of options in the problem solving process.

Problem-based learning (PBL) is simply an approach to engage students to investigate authentic problems (Blumenfeld et al., 1991). Two essential components of PBL require a question or problem that serves to drive activities and artifacts or products that address a driving question (Blumenfeld et al., 1991; Krajcik et al., 1994). Deliberate attention was paid to ensuring projects that allow students to engage in actual investigations; projects that involve students, teachers, and community partners; and projects promoting students using cognitive tools and technological aids. In this example, the task is to develop sustainable plans for a revitalization of the university campus, engaging students to seek student comments and conduct a needs analysis, brief planning students to develop the plans and then engage business students to assess the viability of the suggestions using business metrics as proposed by the planning students.

The desire to increase the coherence between common views on epistemological and pedagogic issues, educational practice and the use of formative and shared assessment methods are all issues that are noted and need to be addressed in the literature (Reason and Bradbury, 2001). In practice this is reflected by programs such as the Stanford Interdisciplinary Graduate Fellowships (SIGF) which allow high achieving students to undertake fellowships that transcend traditional academic boundaries and collaborate with faculties in different departments (Sullivan, 2011).

Research on interdisciplinary design also points to a host of positive advantages for a range of student learning in higher education. Offering an interdisciplinary format helps students realize the required behavioral and performance objectives for learning. A number of Australian universities have moved away from traditional internship programs to innovative problem-based learning models using cross-faculty models for the assessment of the WIL component (Corrin & Smith, 2007).

#### INTERDISCIPLINARY DESIGN EXAMPLE

The interdisciplinary design incorporates a series of stages which interlink and model as closely as possible the relationships between colleagues from different disciplines working within a project management team.

Stage one involved students from a second year undergraduate unit in marketing research. Their role was to design and conduct qualitative and quantitative research into students' perceptions and usage of life on campus. Over 50 students from the unit participated in the data collection and subsequent detailed analysis. These students were briefed by senior staff from the Centre for Planning (the client). Briefing sessions scoped out the necessary information that planning students would need from the research so they could fully develop their plans and solutions. Research students completed the data collection, summarized the findings and developed a brief for the planning students. As an example, information included the need for the planning students to consider that students' perceived campus grounds to be unsafe at night with inadequate lighting in outdoor areas, lacked appropriate food and banking facilities along with poor public transport and parking facilities. In short, the university was seen as lacking the overall amenities facilitating students to more fully engage with university life. Planning students utilized this information as their project brief for their major planning exercise to revitalize the university and develop recommendations to improve campus life. Their plans consisted of two parts

and involved the integration of a range of discipline and generic skills. Firstly, students were required to produce a detailed analysis of the campus site involving socio-economic, environmental, demographic and planning-related information. The site analysis allowed student groups to identify any major strengths and weaknesses of the existing campus land use and services. This part drew heavily on the research provided by the marketing research students. The second stage was the completion of a 5 - 10 year revitalization plan based on sustainability principles for each campus. The two assessment items together produced as authentic a planning assignment as possible within the context of a university semester.

The final part of the process was the development of strategic business plans based on the revitalization plans produced by the planning students. The plans were used as the brief for students in a third year business capstone unit to develop a detailed major strategic business plan with recommendations for the revitalization project. These third year students were briefed by the students and lecturers from both marketing research and urban planning units as part of their project preparation. Apart from the skills involved in working and interpreting information and data collection, the third year students were also exposed to the challenges of working with and alongside students from different disciplines within the university - a requisite skill required in the workplace. Students were tasked with interpreting campus plans, analyzing marketing and survey data and then producing a business plan and presenting that plan to a variety of audiences. An appreciation of these skills is often ignored at the expense of other more prominent skills such as team work and problem solving. Additionally, student involvement in this project also mirrored communities of practice (Wenger, 1998) of social collaboration - an important employability skill for students.

The University Campus Revitalization Project-Student Research Phase (Appendix A) illustrates the brief as outlined in the first phase of this collaborative project. Clear communication and ownership of the project was a major factor in keeping the students on task and engaged with the process. This brief was a central instruction to the marketing research students and to the project as a whole as it initiated the revitalization project.

Both student and staff feedback have been positive. As a whole the project has been seen as a unique opportunity to build and develop a more user friendly and customised plan for university life. Participating staff have been engaged in mentoring students, and developing cross disciplinary links, resources and research opportunities that would not normally present themselves under 'discipline only' assignments. The project also helped facilitate the universities' engagement strategies and fostered better relationships between faculties and academics simply through meeting fact to face and new collaborative inter faculty research. Students' working alongside colleagues from different schools within the university offers real challenges, and learning opportunities that closely mirror the workplace.

The project offers an innovative approach to integrated assessments incorporating all stages of the project lifecycle with related complexities and challenges. Mentoring and communication skills such as communicating effectively, self-awareness, analyzing data and developing initiative were all practiced as part of the learning outcomes. Comments (both qualitative and quantitative) from the unit feedback survey indicate that students recognize the benefits of integrated, authentic assessment using real world issues (see Table 1) .

TABLE 1. Student unit feedback prior to and post implementation of the campus revitalization project.

Unit of study	Student satisfaction mean values and comments	
	<i>Semester 1 Prior: Student mean satisfaction values and comments</i>	<i>Semester 2 Post: Student mean satisfaction values and comments</i>
Marketing Research	45 (n=31) "More practical examples needed in such a complex unit. My learning style is to conduct more hands on activities -this is needed in this unit"	58 (n=46) "Practical research experience applied to a real situation using the uni campus was very useful. We undertook real data collection and analysis." "The team project using the uni... was an opportunity to conduct our own interview and focus groups. Good practical techniques were developed...with a topic we could relate to."
Planning Design	38 (n=9) No comments provided	57 (n=17) "The assessments put us directly into the job area of a Planner, giving us early knowledge and experience of what was to offer for us in the job for our future" "There was sufficient hands on type assessments" "I liked the idea behind the assessment campus plan cluster-was practical
Business Strategy	66 (n=32) "More practical work needs to be included so we can get an appreciation of the real business world and what it's like to work in a corporation." "More practical work in class needed." "Need to have more guest speakers, real business problems and issues not text book stuff and networking functions to meet business leaders so we can put our theory into practice "	70 (n=87) "The university project was daunting and at times stressful but, we learnt as a group and bonded together and sort of mentored each other through it. Working with the planning guys was at first unusual but, I can honestly say as a group we started to understand their view of the world a lot better-breaking down the barriers a bit!" "The assessments put us directly into the job area of a planner, giving us early knowledge and experience of what there was to offer for us in the job for our future." "In the typical organization we will end up in you have to work with people from all the different sections so this was really useful but, a bit hectic – more time needed perhaps 12 weeks! I thought they were different and they are but, it was great to work alongside them on a project at the uni-let's hope we can use these skills at interview time." "I really enjoyed doing the assessments as they were different to all my other units. I found that they were challenging but very enjoyable"

\*Mean values are calculated after recoding the responses 1 (strongly disagree), 2 (disagree), 3 (neither agree nor disagree), 4 (agree) and 5 (strongly agree) to -100, -50, 0, 50, 100 respectively.

## STUDENT FEEDBACK

Data collected from each unit review was examined across two time-frames. The semester immediately before the campus revitalization project was introduced and after the revitalization project was undertaken. The results show a positive swing within the semester of utilizing the university campus revitalization assessment compared with those not exposed to the project. Although it is understood that many factors contributed to the overall satisfaction scores each semester, in each case the only change in unit structure was the cross disciplinary assessment.

## CONCLUSION

This paper is a current example of a student-centric approach to interdisciplinary studies that mirrors the business world demands, challenges and realities. From a teaching and learning point of view we often work in the so called silo style of management. Students and staff from different schools rarely have the opportunity to work alongside each other and may not have an appreciation for or understanding of different disciplines and the inherent theories and learning objectives. Higher education needs to be aware of outside drivers that will continue to force change.

The need for and inherent advantages of collaborative learning for students and staff will continue to be a driver with the continued growth of e-learning as a major pedagogical instrument affecting how faculties interact with students (Wong, 2012). However, this approach also requires close liaison between lecturers from other faculties in developing the assessments and integrating the learning aspects across different units during core teaching times. Similarly, students are also required to interact with other students across disciplines in contributing relevant and timely information to assist with the assessment tasks. This often involves and certainly requires students to be able to articulate their views to a new audience mainly unaware of the specific discipline language and associated terminology used. When students are required to introduce, explain and justify these terms and develop models to other students' a deeper (rather than surface) learning occurs.

A mutual appreciation and better understanding of different disciplines is a by-product of this approach. Students are able to work across many areas (e.g., research, survey design, customer perceptions, planning concepts, environmental and sustainability concepts, business costing and planning, and bench marking best practices). More importantly, students can learn to avoid many of the pitfalls of the 'silo' approach with its narrow view of managing resources, people and ultimately understanding outcomes. It provides a rich context of job ready skills not easily mastered by traditional means in either universities or the workplace. This project allows for students to view the development process of information gathering and analysis to develop and flow within the university as it would in the business world. It offers students the opportunity to engage as both consultants and clients. A high level of student-centered and professional assessments using industry experts, peer assessment (both inter and intra faculty), student self-assessment, and performance reviews were used throughout the project life cycle. Importantly, staff are also beneficiaries of a more collegial approach and the inherent advantages of the possibilities of new relationship building, research and networking opportunities on campus.

This project can be extended in a number of ways. Firstly, the geographic area of the study can be expanded to include the local town area (particularly the area near and including the campus). This has already been identified in the literature as an area of focus for sustainable



campus development, utilizing and integrating campus facilities for the local community benefit. In addition, the staff involved plan to offer this model to regional campuses. Furthermore, the project easily opens up opportunities for other units of study to be included in this process. For example, units such as Accounting, New Product Development, Marketing Principles, Organizational Behavior and units beyond the business faculty are all suitable contenders. With careful management this project has the scope to encourage interdisciplinary approaches to teaching and learning that will imbue in students a more complete and wide ranging set of skills including problem solving, research, project management, team work, sustainability and a more business savvy perspective. It also reinforces a student centric approach, allowing students to play a more active role in their learning and professional development.

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APPENDIX A. Research brief: University Campus Revitalization Project - Student Research Phase

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This is a multi-discipline project involving third year business students, marketing and planning students. The overall aim of the project is to provide a series of recommendations and suggestions and strategically plan for a revitalization of the university campuses. The project also allows students from different disciplines and studying different majors to collaborate together. For example, business student's including accounting, finance, human resources management, hospitality and tourism students working with raw data and information and providing a series of recommendations for improving student life on the campuses. The campuses are at different stages of maturity and amenity, yet both offer the potential to provide further use of facilities and space to maximize the existing infrastructure. This would make the campuses more of a university experience for students and a pleasant place to remain after classes finish. The project will also encourage students to conduct research and to access international best practice university plans in a range of areas such as student and local community engagement, best use of current and future infrastructure and sustainability.

This research project is the first phase of the project. This research is required to provide planning students with the necessary information and qualitative and quantitative research and then will be accessed by the business students who will then apply this information as part of their strategic business plan project.

*Student project aims:*

- 1 To explore student perceptions of the university campus/s in terms of :
  - a. Overall image of the university experience
  - b. Access/transport/parking on campus and to campus. Facilities provided (service, variety, price, locations, staff and level of engagement)
  - c. Social outlets (bar, sport, refreshments and meeting place experience)
  - d. Family facilities (crèche, worship centers and weekend access)
  - e. Other
- 2 Examine the usage of facilities and spatial areas of the campus.
- 3 Determine priorities from students on their requirements for additional facilities on campus.
- 4 Determine ideas from students based on aspects such as atmosphere, music and general university experience.
- 5 Determine physical usage of areas within the campus for example, what normal pathways are used and areas frequently visited?



## About the Journal

The Asia-Pacific Journal of Cooperative Education publishes peer-reviewed original research, topical issues, and best practice articles from throughout the world dealing with Cooperative Education (Co-op) and Work Integrated Learning/Education (WIL).

In this Journal, Co-op/WIL is defined as an educational approach that uses relevant work-based projects that form an integrated and assessed part of an academic program of study (e.g., work placements, internships, practicum). These programs should have clear linkages with, or add to, the knowledge and skill base of the academic program. These programs can be described by a variety of names, such as work-based learning, workplace learning, professional training, industry-based learning, engaged industry learning, career and technical education, internships, experiential education, experiential learning, vocational education and training, fieldwork education, and service learning.

The Journal's main aim is to allow specialists working in these areas to disseminate their findings and share their knowledge for the benefit of institutions, co-op/WIL practitioners, and researchers. The Journal desires to encourage quality research and explorative critical discussion that will lead to the advancement of effective practices, development of further understanding of co-op/WIL, and promote further research.

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Before submitting a manuscript, please ensure that the 'instructions for authors' has been followed ([www.apjce.org/instructions-for-authors](http://www.apjce.org/instructions-for-authors)). All manuscripts are to be submitted for blind review directly to the Editor-in-Chief ([editor@apjce.org](mailto:editor@apjce.org)) by way of email attachment. All submissions of manuscripts must be in MS Word format, with manuscript word counts between 3,000 and 5,000 words (excluding references).

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The Journal does also accept *best practice* papers but only if it present a unique or innovative practice of a Co-op/WIL program that is likely to be of interest to the broader Co-op/WIL community. The Journal also accepts a limited number of *Book Reviews* of relevant and recently published books.

*Research reports* should contain; an introduction that describes relevant literature and sets the context of the inquiry, a description and justification for the methodology employed, a description of the research findings-tabulated as appropriate, a discussion of the importance of the findings including their significance for practitioners, and a conclusion preferably incorporating suggestions for further research.

*Topical discussion* articles should contain a clear statement of the topic or issue under discussion, reference to relevant literature, critical discussion of the importance of the issues, and implications for other researchers and practitioners.



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