



World Conference on Transport Research - WCTR 2016 Shanghai. 10-15 July 2016

Understanding Transport Planning Education in an Australian Context

Iderlina Mateo-Babiano^{a*}

^aSchool of Geography, Planning and Environmental Management, The University of Queensland, St Lucia Campus, Queensland, Australia

Abstract

Transport planning professionals, upon commencing practice, are expected to be well-equipped with the knowledge and skills to address new and emerging urban transport challenges as well as to support the changing mobility and accessibility needs of communities. Because of this, the higher education sector is experiencing stronger pressure from industry, government and the public to demonstrate its ability to educate more work-ready graduates, including planning for transport. This research examines the education of transport planning professionals in the Australian context, examining to what extent students are being prepared to enhance their skills that would make them more competitive in the workplace. This research investigates the theory to practice nexus using a survey-based research design administered to transport planning educators and students. It examines the strategies and approaches employed by educators in higher education institutions to address the needs of industry and elicits perception of students within a single institution to examine what they perceive enhances their engagement and learning in taught transport planning course offerings. Results show that students favor activities that offer experiential education, and subsequently, learning. Moreover, while considered as relatively challenging, group work assessment was considered as an important exercise that simulated the workplace setting, engaged student in participatory transport planning process, and created a platform where students were able to bring in a number of key considerations into planning concerns, and overall, allowed them (students) to bridge the gap between theory and practice. The study significantly contributes in enhancing transportation planning pedagogy and informing overall practice in Australia and beyond.

© 2017 The Authors. Published by Elsevier B.V.

Peer-review under responsibility of WORLD CONFERENCE ON TRANSPORT RESEARCH SOCIETY.

Keywords: Type your keywords here, separated by semicolons ;

* Corresponding author. Tel.: +0-000-000-0000 ; fax: +0-000-000-0000 .
E-mail address: author@institute.xxx

1. Introduction

1.1. Background

Transport planning professionals, upon commencing practice, are expected to be well-equipped with the appropriate knowledge and adequate skills to be able to effectively address new and emerging urban transport challenges, and to support the changing mobility and accessibility needs of individuals and communities. Industry, the government and the public often place undue pressure on the Education Sector to be able to demonstrate its ability to educate more work-ready graduates (Handy et al. 2002a; 2002b). This means that individuals who wish to practice transport planning must come out of their programs with appropriate knowledge and skills expected of a new transport professional while also being able to translate knowledge to action (Freeland 2009). However, the traditional approach in teaching transport planning was highly technical in nature, which has resulted in practitioners unable to keep pace with these challenges (Kotval 2003). Moreover, the current form of transport planning education continues to perpetuate the long cycle of theory-less transport planning education, which must be changed (Talvitie 2009) while students are also not provided adequate immersion in “real” transport planning situations (Baum 1997). This has prompted Burke et al. (2013) to call for improved student learning outcomes in transport planning education.

In Australia, urban planning programs, where the transport planning course generally sits, have started to progress from being a technical discipline to a multi-disciplinary, practice-based discipline (Mateo-Babiano and Burke 2014). The diversifying requirements of transport planning practice has encouraged higher education institutions to look into ways and means to equip students, not only with the tools of the trade to be able to connect ideas with action (Freeland 2009) but also to encourage practitioners to have a deeper and more practical understanding of the issues resulting in more reflective practice (Schon 1983). Clearly, it becomes imperative to examine the extent to which the planning pedagogy is able to respond to these changes and hone the next generation of transport planning practitioners to be receptive to the evolving urban contexts.

1.2. Paper's purpose

By examining the provision and delivery of a number of Transport Planning courses offered in Australia, this study aims to: (1) examine different approaches to teaching transport planning; (2) investigate student needs and expectations in learning transport planning; and (3) identify best practices in teaching and learning transport planning.

1.3. Paper's outline

The subsequent section, literature review, will examine the current state of research in transport planning education. This is followed by a discussion of this paper's methodological design in Section 3. In Section 4, the results and findings from the survey and its implications are explored, particularly how the paper can support the development of an evidence-based evaluation framework to assist in the development of a multi-disciplinary, integrated curriculum design for discipline-based courses such as transport planning. This paper is then capped with the Discussion, conclusion and further research. The intent of this project is to ensure that future planners have the necessary skills to plan for transport effectively, and the capabilities required to lead the next generation of transport planning practice.

2. Literature review

Planning for better transportation first gained traction 60 years ago to counteract the increasing urban congestion, but more recently, enhancing transport was mainly to address challenges resulting from wicked problems of environmental pollution, poverty and climate change. Similar to planning theory which, lacks consensus in its definition (Friedmann, 1995), theoretical understanding and knowledge of transport planning has remained scant. Largely influenced by the innovations in the field of planning, planning for transport has continued to be framed

based on the rational model, which was popular from the 1960s to 1970s (Ozawa and Seltzer, 1999, Friedmann, 1995). While planning and the theory of planning continuous to evolve, there is a general agreement that it should pertain to good practice (Klosterman 2011). This systematic review of recent literature is aimed at examining the state of research on the different approaches employed on how transportation planning is taught given the needs and expectations of students in learning transport planning to establish best practices in teaching and learning transport planning.

2.1. Teaching transport planning

Practice-based subjects such as Transport Planning are generally designed to better prepare students to the rigors of professional practice (Ozawa and Seltzer, 1999, Baum, 1997). However, similar to other practice-oriented discipline, the diversifying requirements of transport planning practice demand that universities equip students with the tools of the trade to be able to connect ideas with action (Freeland, 2009). Transport planning professionals are expected to not only have the technical skills (i.e. modeling) to provide sound advice to decision making (Friedmann, 2008) but also facilitate open communication amongst a range of involved actors and stakeholders (Friedmann, 2008, Ozawa and Seltzer, 1999). Because of this, Transport Planning educators are faced with the dual challenge of honing practical skills that are relevant to practice whilst also able to develop an appreciation towards theories of planning.

Baum (1997) points out that the bias in planning education continues to permeate and widens the divide between theory and practice because educators who educate future transport planning professionals are being trained as academicians in traditional academic disciplines instead of transport planning practitioners practicing in a multidisciplinary field. In addition, these educators are also being rewarded as academicians through research publication, increasingly creating the duality between the academic culture and practice (Baum, 1997).

According to Friedmann (1995), planning theory consists of a “normative mode of theorizing” which basically means that it aims to improve planning practice (Friedmann, 1995). It is therefore expected that planning theory is very closely intertwined with planning practice. Planning theory forms the basis of practice, thus, essential to practice.

Experiential learning demonstrates a feasible approach to linking theory with practice (Freeland, 2009, Friedmann, 1995, Friedmann, 2008). Experiential learning approaches such as practicum, apprenticeship, internship, service learning and problem-based learning provide students with the opportunity to experience practice in a workplace setting (Kotval, 2003). A number of planning programs however because of certain barriers provide limited opportunities to students to be able to practice planning (Baum 1997). For example, internship, practicum and apprenticeship and simulated consulting (Rose 2000) while they provide students with the twin benefits of practical experience, which assist them in confidence-building and community service (Kotval, 2003), these activities also undoubtedly place multiple challenges on both the school and course coordinator in ensuring a one-on-one student-practitioner match. While this may be feasible for a class size of 10, it can scale the administrative challenges if managing a class size of 100, given that feedback on student performance from supervisors and/or mentors is crucial to the effectiveness of the whole experiential learning process (Baum, 1997). This can be mitigated by: implementing parallel activities that explicitly link theory to practice (Alexander 2010; Burgoyne 2004); include active participation from the ‘client’ to negotiate scope of work; and ensure availability of client on an as need basis to provide timely feedback (Kotval, 2003).

Moreover, the changing theories of planning have led to the evolving practice of planning and vice versa. While planning pedagogy previously followed a rational-reduction model, a study by Ozawa and Seltzer (1999), which appears to reflect to the changing facets of the [transport] planning profession, further reiterates that the required skills for entry-level planners must now focus on communication rather than on rational theory skills. In addition, this should be reviewed and expanded to capture the policy-orientation (Ozawa and Seltzer, 1999). It therefore becomes critical to further examine the education of transport planning professionals, to help close the disparity between transport planning pedagogy and planning practice to respond to the needs of the industry.

2.2. Learning transport planning

Documentary evidence shows that professionals who have the ability to effectively link theory and practice are observed to be more competent, employable and can easily assimilate the rigors of the workplace (Shinkman and Montross 1992). Students in the Planning program expect to be given the opportunity to practice planning. Students in transport planning would significantly benefit from a curriculum that is designed to explicitly and effectively link knowledge to action. While a number of possible strategies exist to ensure effective progression from being a student to trained practitioner, there remains a lack of basic understanding on what students' perceive as important to be able to link theory to practice and limited evidence to test this perception.

Students generally study theories of planning, including a number of seminal concepts such as the rational theoretical models and processes, Lindblom's disjointed incrementalism, Davidoff's advocacy planning, and Alan Altshuler's critique of comprehensive planning. As such, there is an expectation that these models would be used in the workplace. Imagine the confusion of students after finding out that what they are expected to do in the workplace is distinct from what they were prepared to do when they were in the university, therefore causing further frustration amongst students (Baum, 1997).

2.3. Summary

This compels a change in the way transport planning is taught from the traditional method of teaching the subject into a multi-disciplinary, integrated approach to curriculum design to ensure that graduates from the program is able to meet the needs of practice. It is therefore argued in this critical review that students in practice-oriented pedagogies such as urban planning in general and transport planning in particular would significantly benefit from the program if the curriculum is designed in such a way that it explicitly and effectively enables the link between theory and practice. While there are a number of possible options to achieve this specific learning outcome, in-depth examination is required on the available options to ensure that effective progression from being a student to trained practitioner is realised.

3. Methodological design

A survey-based research design was identified as the most appropriate research strategy to address the paper's three objectives. The ease in implementing the online questionnaire survey to facilitate responses in different geographical locations was the main motivation for utilizing such method. This also meant that questionnaire survey constrained the number of questions that can be asked and did not allow follow-ups. However, it was still the most appropriate approach in this situation because it entailed moderate to low preparation time, low student time, moderate time for analysis and required no additional resources (Harvey, 1998).

3.1. Online questionnaire survey to coordinators and lecturers

To address objective (1) to examine different approaches to teaching transport planning, academics coordinating and/or teaching transport planning courses, who were identified via purposive and snowballing sampling design, were invited to participate in the study via an email invitation. Information sheet outlining the study was sent as an attachment with the email. By replying positively to the email and completing the online survey indicated participant's consent to take part in the survey. The questionnaire survey was structured as an open-ended survey, as it allowed more in-depth analysis on the posed question. Potential participants were given an opportunity to provide their own comment on specific questions. Basic demographic profile was also collected. An electronic copy of the final research report was made available to interested participants upon providing their email address.

3.2. Perception survey to students enrolled in Transport Planning subjects

To address objective (2) to investigate student needs and expectations in learning transport planning, an evaluation of transport planning courses taught to students in Transport Planning at both undergraduate and

postgraduate levels was undertaken. To implement this, three key questions were posed to the two student cohorts: i) describe their preferred class session and the reason why; ii) their preferred contact session and the reason why; and iii) describe their course expectation for the coming weeks? This three-point questionnaire was administered to gather a more comprehensive appraisal and understanding of the course content, structure and implementation.

3.3. Data synthesis, analysis and limitation

While the intended data analysis was to utilize both descriptive and inferential techniques (Harvey, 1998) to be able to address Objective (3) *to identify best practices in teaching and learning transport planning*, it became impossible to do so because of the small sample size. Thus, analysis was limited to simple descriptive analysis to provide a basic profile of students and educators in transport planning courses offered across higher education institutions. This is supplemented by a qualitative thematic analysis of perception data drawn from responses to the open-ended questionnaire survey to be able to identify similar or interrelated concepts. Limitations abound in this study but can also be opportunities for further research. Aside from the small sample size, other limitations of the study included time constraints and resource limitations. The survey was limited to the number of lecturer/coordinator as well as the enrolled students in two courses.

4. Results and findings

4.1. Profile of survey respondents and the taught transport planning courses

Sixteen (16) higher education academic institutions out of 39 across Australia were identified to offer ‘transportation planning’ subjects either at the undergraduate or postgraduate levels or both (Mateo-Babiano and Burke 2014). Approximately 10 academic staff out of 20 invited participated in the online questionnaire survey (50% participation rate). Out of the 10 educator survey participants who responded to the online questionnaire survey, 8 answered that they both lecture into and coordinate the subject. Transport planning subjects may be described to cater for small to medium sized classes with 5 survey participants answering that class sizes comprised of less than 50 students. Moreover, according to surveyed respondents, student numbers have remained the same as the previous year (in 2013).

Table 1. Role in the course, student enrollment and changes to student numbers

Question	Choices	Responses
Your role in the course	Coordinator	1
	Lecturer	1
	Both	8
Student enrollment	< 50 (from 10 to 45)	5
	> 50	3
Enrollment in the past year	Increased	1
	Decreased	2
	Remained the same	5

4.2. Teaching and learning spaces

Arguably, student learning outcomes for students in transport planning is underpinned not only by improving curriculum design but by simultaneously enhancing learning spaces that is responsive to expected learning outcomes (Bennett 2007). When posed with the question on the types of learning spaces on which transport planning subjects were being delivered, 4 academic survey participants stated that they are delivered in a lecture theatre whilst 2 stated the course was delivered in a flat room, 1 in a collaborative space and 2 stated it was delivered online. Based on the diversity of responses, it can therefore be concluded that transport planning is being delivered in different learning spaces. This also means that this would encourage or create different learning experiences and possibly, outcomes. However, to date, it is unknown how physical design elements in a specific class setting afford certain opportunities

for students to practice transport planning and the spaces in which students may act on these opportunities, thus requiring further research.

Table 2. Student learning/study spaces

Choices	Responses
Collaborative space	1
Lecture theatre	4
Tiered	0
Flat room	2
Collaborative space	1
Internet-based/online	2

4.3. Teaching transport planning

When asked about the learning activities they employ as part of their learning activities, 9 out of 10 survey respondents reported delivering lectures; 7 answered they employed case studies as well as inviting guest lecturers; 6 answered integrating group work and tutorials; while 5 mentioned site visits and workshops (refer to Table 2 for complete answers), implying that educators utilize a variety of approaches to deliver transport planning concepts, which appear to respond to either one or a number of aspects specified in Kolb's (1981) learning cycle.

When asked about teaching approaches to enhance teaching and learning, survey participants reported that real world project examples, tutorials and sessions in computer laboratories exemplified innovative approaches or best practices, which helped enhance student learning and engagement. In computer laboratories, a respondent added, "students get plenty of opportunities to actually implement all the planning and modelling techniques discussed during the lectures". Likewise, in tutorials, "students are assisted in completing their client work – as a WIL approach". These approaches concur with Baum's (1997) call to expose students to the realities of practice, which according to him, is an essential aspect in student learning which practice-oriented academician can share with students. As earlier stated, there is general agreement in the literature that experiential learning approaches such as practicum, apprenticeship, internship, service learning and, to a certain extent, problem-based learning, provide students the opportunity to experience practice in a workplace setting (Kotval, 2003). According Baum (1997), when students are afforded the opportunity, students come out of such exercise with a deeper and more practical understanding of the issues, resulting in more reflective practice (Schön, 1983).

Table 2. Delivery of learning activities

Choices	Responses
lectures	9
workshops	5
group work/ collaborative	6
case studies	7
guest lectures	7
site visits/ field work/ field trip	5
blackboard/ discussion boards	3
tutorials	6
journals	3
transmission	1

4.4. Assessment in an integrated curriculum

Developing an integrated curriculum for Transportation Planning entails the alignment as well as integration of the course objectives, the key learning activities and assessment tasks (Cowan 2004). Earlier studies demonstrate that assessment tasks most significantly influence student learning (Frankland 2008; Wedlund et al. 2009; Gibbs and Simpson 2004-2005). Gibbs and Simpson (2004-2005) reaffirmed that students tend to put more effort on aspects of the course that are being assessed while Ramsden (2003) states that student learning is largely influenced by how

students perceive they will be assessed (Ramsden 2003; Frankland 2008). This means that assessment tasks can be utilized to possibly predict student learning.

Posed as open-ended questions, educator survey participants were asked to describe the assessment tasks that they have incorporated into their transport planning courses, which are perceived to be enjoyable by students. According to survey participants, students enjoyed working on interesting projects relevant to course materials. They also like to work on group projects, usually with a client, and to complete a collaborative assignment. Also, they like to undertake individual reports where they have the opportunity to stand out. Students prefer doing tasks with practical application such as applying the theory to the design of a new bus network in the area of Melbourne as well as the transport modeling exercise of a public transport system. Students perceive the latter to be a practical problem solving exercise wherein assessments took on a real-world project example (Freeland 2009) where Teams became involved with *“the identification of transport needs, determining the operational and transport logistics issues, thinking about policy issues and implications on delivering a public transport service.”*

When students were queried about assessment tasks, student survey participants highlighted the importance of supporting and scaffolding assessments. They commented that they preferred that tutorials support assessments by breaking them down into clear, discrete components, which would then be undertaken and completed during tutorials but contributing towards their overall assignment. Clearly, an alignment of course assessment tasks with the course aim and learning objectives becomes critical to learning and teaching. Moreover, Boud's (2010) seven principles can provide a helpful guide in the development of the scope and sequence of course assessments in the design of transport planning assessments. For example, providing different types and sequenced assessments *“responds to the diverse expectations and experiences of entering students”* (Boud 2010) and can, therefore, enhance student engagement and learning.

4.5. Teaching philosophy informing an integrated curriculum

Because alignment and integration is critical, it is helpful to understand the extent to which an educator's teaching philosophy guides the course content and structure. When this question was posed to educator respondents, survey participants responded that because their teaching philosophy largely influenced the course content and structure of the courses that they teach, it resulted in the complete overhauling of the subject when they first taught the subject. The changes were mainly observed in the addition of course materials, reflecting real world applications by working with a client. Some of the responses reported using simple and specific examples to introduce transport planning and modeling technique, since it is believed that problem-based approach is effective in helping students understand concepts and theories. One comment described planning as a *“pragmatic vocational undertaking that encourages empirically derived, evidence based data”* as underpinning planning tasks. Course design also ensured that students are *“familiar with the mainstream discourses occurring in transport planning and policy, and an understanding of contemporary transport issues, so that the most appropriate solutions to today's most pressing transport issues and problems can be devised”*. An educator respondent reported that rather than his/her own philosophy, *“the university's teaching philosophy (i.e. graduate qualities/attributes) influenced the manner in which course content and structure is designed and delivered.* Providing an example, this respondent mentioned that *“15% of the course is designed around team work, placing emphasis on working with industry for transport planning solutions. Also, conducting field trip to visit transport infrastructure projects allows students to observe how major transport infrastructure projects are planned, delivered and managed, these are all reflected in the course content”*. Summing it up, an educator respondent mentioned that the design of the course must be able to equip students with the skills and capacity to become independent thinkers, with transport planning and analytical skills that provide them with the capacity to understand a wide range of transport issues and be able to suggest transport planning and policy solutions.

4.6. Learning transport planning: student needs and expectations

Through the implementation of a qualitative survey design, the transport planning student cohort at UQ were queried on the overall delivery of the transport planning course, including preferred class delivery, class structure, and class contents. Results, as gathered from the responses of students, show that students prefer experiential

learning approaches. Educators, on the other hand, who directly lecture or coordinate these transport planning subjects in different higher education institutions, based on their self-reported answers, appear to be fulfilling students' preferences for experiential learning.

When students were queried about how could classes be made more engaging, students preferred the *“use of diagrams and pictures instead of text-based content”*. In addition, students become engaged when *“the lecturer is really enthusiastic and encourages group work”*.

On class delivery, student survey respondents commented that the delivery of the lecture should be *“very interesting and sometimes [delivered] in a funny way”*; *“dynamic”* and *“the students are engaged about an interesting topic”*; *“the lecturer is inspired and passionate about the subject, which is contagious”*; Also, it was mentioned *“not to focus on the things that are not important and to get straight to the point”*.

On the class structure, survey respondents commented that the structure which works well for them are when undertaking *“group work”*; *“case study”*; and *“interesting and engaging content”* in the lecture. One student mentioned that *“videos of best case studies can be presented followed by discussions”* while another suggested that it is also worthwhile when *“the lecture is problem-based and there is theory to practice application”*; An interesting suggestion was *“to create a more practical environment, applied town planning elements should be added into the lectures”* providing additional insights the importance of experiential learning to enhance student learning. A student also suggested that a *“walking tour of the campus should be included because it gives them insight into the entire transport oriented development in a location”* suggesting that university learning must not always be conducted inside the classroom but how the local setting provides important insights to support student engagement and learning.

On class contents, student survey respondents mentioned a diverse set of subjects but appear to be interested on the background context and the application of transport commented that lectures involving history of cities, and geography and mapping are quite interesting. They enjoy lectures that discuss property developments, demographics and other real world subjects.

On tutorials or practicals, student survey respondents seem to enjoy tutors who are *“very good, easy going, enthusiastic and passionate about the topics”* as well as demonstrate good communication skills such as the ability to *“explain everything in the class well”* and good facilitation skills so that they *“know exactly how to conduct a debate and prepare funny quizzes”*. One student mentioned that *“tutors who are more laid back can relate to students more easily”* while one mentioned the importance of the tutor's age implying that *“the students engage better with people that are more understanding and in the same age group”*.

4.7. Challenges in Teaching and Learning

Challenges are critical to achieve improvements. Survey respondents cited that the challenges they have encountered in the course are mainly due to different backgrounds and the lack of skills of the students, which required modification of teaching materials to suit the students' needs. For example, students do not have any background on transport planning and modeling as well as limited quantitative skills of the students, which do not qualify them to undertake advance mathematical modeling, thus modeling exercises need to be adapted to suit students with a non-engineering background. Also, there are external students and few of them are working in the industry, therefore lecture materials are revised to satisfy their standard and requirements. The other challenges include differences in the motivation of taking the class, and international students not attending lectures and not attempting to answer essay questions in the exam.

When posed with the question of how did you go about solving these challenges, survey respondents said that to solve the challenges cited above, they keep on updating the course materials, and expectations on group work and the course are set early on. The course consisting of less than 20 people is manageable and there is an opportunity to be in contact with individual students. With regard to modeling exercise, it is carefully structured in a fairly basic language, without requiring an advanced background in math or engineering. Also, considering that the students would not view transport modeling as a black box exercise, the course is structured to ensure that the students are equipped with a basic understanding of transport modeling and its purpose. It is mentioned as well that they are still ongoing challenges.

4.8. Best practices in teaching and learning transport planning

The call to strengthen the quality of transportation planning in the tertiary education system is now a tall order, given the urgent requirement of effectively preparing graduates to match industry expectations. De-identifying specific subject information, student respondents were then queried on best practice teaching in transport planning. Their responses are presented in the following paragraphs.

A teacher's performance in class appears to be a very strong influence on how students perceived best practice in teaching. For example, best practice lecture delivery is described by a student respondent as *"a lecturer who is passionate about the content"*; *"delivers the subject matter in an engaging manner"*; while another commented on the lecture being *"informative and provides a vision on transport planning, which makes it extremely interesting"*. While another student respondent commented on *"the lecturer being knowledgeable about the content of the subject and his/her ability to make it easy to understand for students."*

On the other hand, student respondents also described best practice teaching as referring to activities and strategies employed in class, which encourage experiential learning. One student respondent mentioned that a subject is made more interesting *"because the professors always connect these information with the actual issue and real case studies"*. While another outlined that lectures become more interesting when *"videos are presented and guest speakers are invited"*. One feedback captures it clearly: one of the lecturers provides *"very informative, detailed and at the same time interactive. It is problem-based and includes case studies."* A survey respondent mentioned that *"a course is enjoyable as it is split in two parts: theoretical and practical"* while another student respondent mentioned as a best practice example is *"inviting a mix of lecturers from different departments or [inviting] external personnel"*. On the other hand, while the process of teaching is important to student engagement and learning, the product or the actual content is also as important. There were also several comments which referred to the theoretical content of the subject matter as contributory to best practice teaching and learning such as the class on *"active transport lecture....gives (the) students a better idea of (the) active transport principles"* and simple and easy to understand concepts in accessibility and mobility of transport. As such, it is critical for transport planning education to encourage deep rather than surface learning amongst its students to encourage appreciation of planning theories, so as to be able to: effectively link these learned theories into practice, address the needs of industry and be relevant to practice; and to maximize the potential of learning and teaching within the context of a more interdisciplinary and/or multidisciplinary programs.

Educator survey respondents additionally mentioned the other strategies that should have been incorporated but were not able to are as follows: *"additional site work, and guest speakers from the industry with modeling experience should be invited to conduct seminars"* and *"a day field trip should be organized across the coast looking at the range of transport infrastructures in conjunction with local and state government"*. This appears as strategies to advance experiential learning in the classroom. While, to an extent, it is not feasible to include all possible learning and teaching experiential approaches in the course curriculum resulting in the current mismatch between what is required in practice and what is being taught to students in transport planning courses (Handy et al., 2002a; 2002b), it is crucial that integrated approaches should provide students with experiential learning experiences that would enhance their skills that would be useful in practice.

5. Discussion, summary and conclusion

Experiential learning promises to be a potential strategy in linking theory to practice (Freeland, 2009, Friedmann, 1995, Friedmann, 2008) as learners who are highly engaged in the learning activities would be more likely to use learned theories in their professional practice. Some experiential-based instructional approaches such as learning by doing through studios (Arefi and Triantafillou, 2005) and problem-based learning where students solve real-world issues (Gaber, 2007) provide students the opportunity to experience practice. Students also like having guest lecturers, presenting the paired teacher lecturing of practitioner and academician (Hudson, 2005), one student cited *"the example of civil engineer provide a civil engineering perspective on transportation and the different frameworks that are implemented around the campus."*

Practice-based courses such as transport planning offer a different challenge that needs to be adequately addressed. This study investigated the implementation of a problem-based learning assessment to postgraduate

students. While it proved difficult to measure the indicators demonstrating the link from theory to practice, students perceived the implementation of the intervention encouraged them to link knowledge to action. They specifically mentioned that transport issue identification, developing triple bottom line outcomes and land-use transport integration were instrumental in this regard. Students also identified problems encountered while undertaking the project and recommended improvements on the assessment so as to better link the knowledge-action gap. This will be considered in the next iteration of the course

If the aim is to successfully educate what Sussman calls the “*new transport professional*,” the call to examine transport planning education is in order. This paper is an initial attempt at examining transport planning education in an Australian context. Whilst from the outset, the intent of the scoping study was not to undertake an extensive audit of teaching and learning practices in transport planning education, the exercise allowed an initial documentation of the diversity in transport courses being offered across academic institutions. However, a more comprehensive and in-depth evaluation of these courses will improve our understanding about transport planning course curriculum design, especially within the context of the Australian transport education.

Acknowledgements

The author would like to acknowledge funding from UQ Geography, Planning and Environmental Management which facilitated the online survey to benchmark the transport planning subject at UQ across all other similar courses offered in other higher education institutions. It would also like to acknowledge and thank the assistance of numerous individuals who supported the study in various capacities. The views expressed in this paper are solely those of the authors and do not represent the views of any organization. The authors take full responsibility for all errors and omissions.

References

- Alexander E.R 2010 “Introduction: does planning theory affect practice and if so, how?”, *Planning Theory*, 9(2), 99-107.
- Arefi, M. and Triantafillou, M. 2005 “Reflections on the Pedagogy of Place in Planning and Urban Design”, *Journal of Planning Education and Research*, 25, 75-88.
- Baum, H. S. 1997 “Teaching Practice”, *Journal of Planning Education and Research*, 17, 21-29.
- Bennett, S. 2007 “First questions for designing higher education learning spaces”
- Burgoyne, P. 2004 “Theory or Practice?” *Creative Review*, 24, 41-43.
- Boud, D. 2010 “Assessment 2020: Seven propositions for assessment reform in higher education”, website at www.assessmentfutures.com.
- Burke, M. Mateo-Babiano, I. and Pan, H. 2013 “Improving Student Learning in Transport and Land Use Planning in Australia and in China: theory, concepts and ways forward”, *Journal of the Eastern Asia Society for Transportation Studies*, 9(2013), 1059-1075.
- Cowan, J. 2004 “Education for higher level capabilities: Beyond alignment, to integration?” In: Gil, V.M.S., Alarcao, I. & Hooghoff, H. (eds.) *Challenges in teaching and learning in higher education* Aveiro, Portugal: University of Aveiro and SLO-Netherlands Institute for Curriculum Development.
- Frankland, S. 2008. Aligning Assessment with Learning and Teaching. In: Frankland, S. (ed.) *Enhancing Teaching and Learning through Assessment: Deriving an Appropriate Model*. Netherlands: Springer
- Freeland, R.M. 2009 “Liberal Education and Effective Practice: The Necessary Revolution in Undergraduate Education. *Liberal Education*, 95, 6-13.
- Friedmann, J. 1995. Teaching Planning Theory. *Journal of planning education and research*, 14, 156-162.
- Friedmann, J. 2008. The Uses of Planning Theory. *Journal of planning education and research*, 28, 247-257.
- Gaber, J. 2007 “Simulating planning SIMCity as a pedagogical tool”, *Journal of Planning Education and Research*, 27(2), 113-121.
- Handy, S., Weston, L., Song, J., Lane, M., Terry, J. 2002a *The Education of Transportation Planning Professionals*. Davis, California: Institute of Transportation Studies, University of California.
- Handy, S., Weston, L., Song, J., Lane, M., Terry, J. 2002b “Education of Transportation Planning Professionals”, *Transportation Research Record* 1812(-1), 151-160.

- Harvey, J. 1998 *Evaluation cookbook*, Edinburgh, Institute for Computer Based Learning.
- Hudson, P. 2005 “Informing Future Learning Design”, *Journal of Learning Design* 1(1): 33-44.
- Gibbs, G. and Simpson, C. 2004-2005 “Conditions Under Which Assessment Supports Student’ Learning” *Learning and Teaching in Higher Education*, 1, 1-31.
- Kotval, Z. 2003 “Teaching Experiential Learning in the Urban Planning Curriculum”, *Journal of Geography in Higher Education*, 27, 297-308.
- Kolb, D. 1981 “Learning Styles and Disciplinary Differences. in *The Modern American College: responding to the new realities of diverse students and a changing society*. San Francisco: Jossey-Bass Inc. pp. 232-255
- Klosterman, R. 2011, “Planning Theory Education: A Thirty-Year Review”, *Journal of Planning Education and Research* 31:3 319-331.
- Mateo-Babiano, I. and Burke, M.I. 2013, “Transport planning education in urban planning schools in Australia”, *Australasian Transport Research Forum 2013 Proceedings*, 2 - 4 October 2013, Brisbane, Australia.
- Ozawa, C.P. and Seltzer, E.P. 1999 “Taking Our Bearings: Mapping a Relationship Among Planning Practice, Theory, and Education”, *Journal of planning education and research*, 18, 257-266.
- Ramsden, P. 2003 *Learning to teach in higher education*, New York, RoutledgeFalmer.
- Rose, G. 2000 “Simulated consulting: a win-win experience in transport engineering education”, *European Journal of Engineering Education* 25(1), 57-64.
- Schön, D. 1983 *The reflective practitioner*, New York, Basic Books.
- Shinkman, C.J. and Montross, D.H. 1992 *Career Development: Theory and Practice*, Charles C.
- Talvitie, A. 2009 “Theoryless Planning”, *Planning Theory* 8(2), 166-190.
- Wedlund, T., Axelsson, K. & Melin, U. 2009 “Project-based Learning: An Emergent Framework for Designing Courses”, *Journal of Information Systems Education*.



Minerva Access is the Institutional Repository of The University of Melbourne

Author/s:

Mateo-Babiano, I

Title:

Understanding Transport Planning Education in an Australian Context

Date:

2017-01-01

Citation:

Mateo-Babiano, I, Understanding Transport Planning Education in an Australian Context,
WORLD CONFERENCE ON TRANSPORT RESEARCH - WCTR 2016, 2017, 25

Persistent Link:

<http://hdl.handle.net/11343/230680>

File Description:

Published version