Research Colloquia and Showcase

12th and 13th June 2013

University of Southern Queensland

Springfield

THE CONFERENCE PREFACE

It is suggested that economic development research refers to the sustained, concerted actions of policymakers and communities to improve and enhance the standard of living, wellbeing and economic health of a specific area or community (McMillan& Chavis, 1986; Chavis, Hogge, McMillan, & Wandersman, 1986). The term community encompasses many regional stakeholders including business, non-profits and associations, people and groups. The essence is the community shares common values, beliefs and themes (Long & Perkins, 2003; Chipuer, & Pretty, 1999). Community development is often linked to community service work and community planning and development in local regions and focuses on the social well-being of local, regional and national communities. Community development research aims to identify a common agenda, outcome goals and plans to achieve a high standard of living and wellbeing.

At the intersection between community development and community building are a number of stakeholders including business and social enterprises that are considered in investigations. Such research is multidisciplinary and can include development of human capital, social capital, critical infrastructure, regional competitiveness, environmental and social sustainability, social inclusion, health, safety, literacy, and business. The many contributions to the showcase have focused on the overarching theme of building sustainable and resilient communities. Many of the authors are working with international and national collaborators in major projects that form the basis of the discussion and research papers presented. We thank the national collaborators for their support and acknowledge the enriched contributions evidenced by the colloquia to support and contribute to the advancing national and international work in the area of sustainable communities.

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THE CONFERENCE Preface by Associate Professor Margee Hume

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HOW LOCAL IS LOCAL RADIO IN REGIONAL AUSTRALIA

Ashley P Jones
Lecturer: TV & Radio Broadcast
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That notion of local radio was born with the establishment of radio stations in geographically defined spaces and was established to serve that community, it is the business model that has arguably changed radio to greater and lesser degrees to the point where the radio audience is a significant enough collective, interested enough to listen to particular programming, for a station sales person to sell the audience to advertisers (Johnson, 1988). Over time it has changed, in some cases, from content generated and delivered from the local radio station site to the local radio station site used as a relay station to transmit a network program with local advertisements inserted and no local on-air talent, potentially diminishing its localness. The latter is a significant departure from the original intent of local radio yet it appears to have seamlessly changed without concern from the local agents.

Commercial radio stations were growing through the 1930s and 1940s with a clear understanding that they had to financially stand on their own two feet without any government support. The tension between satisfying the audience, the advertiser and keeping sufficient funds coming in to cover costs was front of mind for station management. Radio Station management were very aware that people had the freedom to tune from station to station as they desired (Mackay 1957 p110 -111).

The Australian model for networking in the late 1930s and 1940s was based on individual radio stations forming groups, referred to as 'chains', with the view of being able to sell advertising across the stations, sharing of content but the network is "the servant and not the master of the stations", it kept in the individual station free to decide what was good for their audience, one of the models was more as an affiliate than a true network guarding the individuality of the local radio station (Mackay 1957 p146-147). During the 1940s, it is claimed that radio "helped connect people to their local communities and the wider world. Some say the wireless was like a friend…..even a member of the family (Mac 4). Commercial radio's transition was dramatic through the 1950s and 1960s moving from local content, as described, to a "hip and happening" approach appealing to the younger market, with more music and short talk breaks (Ahearn10). As commercial radio departed from its roots to respond to its current economic realities, community radio became a way of addressing the loss of a voice within the local area. Commercial radio in regional centres maintains some degree of local content as a minimum but determined by legislation. Community radio was established in Australia in the 1970s.

Commercial radio is measured in terms of total value to society and they offer the equation as the sum of the value to advertisers and the value to listeners equals value to society. It is argued that commercial radio stations make decisions on the basis of advertising revenue and the cost of operating the station with little regard for society's value placed on radio programming and this has resulted in local radio stations either being sold to networks, reduced to a relay station because of the specific imperatives of the radio network (Halcoussis and Lowenberg , 2012). This has had dramatic impact on regional radio services. The emphasis on localism gives rise to a renewed sense of connection with the local.

The focus on localism might be directed through narrowcast services in the US or community radio more generally but people are seeking a voice and radio is providing the platform to be heard. It is a powerful tool employed by individuals who are concerned with the mediated media's offering in a commercial setting. There is great concern over the erosion of local content and local ownership specifically in times when radio is a tool to communicate important and sometimes life threatening events. In these circumstances local radio is valued and must continue to be valued, specifically in regional Australia. It was established to provide a variety of content to a local market, as we continue on in the information age radio ought not be discounted as old technology, rather a relevant player in the media mix.

GOOGLE GLASS AND ITS POTENTIAL USES IN DIGITAL EDUCATION

Mehryar Nooriafshar

Recent research in the area of multimedia conducted by the author in Australia, Japan and North America has re-confirmed the importance and effectiveness of visual features in teaching and learning materials.

According to the findings, the visual aspects and interaction with the multimedia system are the most preferred features amongst the surveyed students. In all of these studies, the surveyed students have also indicated that the visual features play a very important role in understanding the concepts.

Based on these findings, the author has embarked on an investigation to determine the practical and innovative uses of the latest Google product, the Google Glass.

Hence, this paper has initiated a study on the possible contributions this amazing device can make to digital education. It has been shown that Google Glass can assist leaners to access information, share, connect and engage in discussions with others utilising a more human-like interface.

Key words: Google Glass, virtual reality, Digital, Education

Problem Statement and Purpose

Google is about to introduce "Google Glass". This device is described as a wearable computer which, in a hands-free manner, allows the wearer to access the Internet and utilize the incorporated 720p camera. The camera, a prominent feature, can capture both still shots and video clips for storage or sharing purposes. The most important feature of Google Glass (The Glass) is that the user has the option of providing the commands without, practically, lifting a finger. In other words, the interface with this wearable computer is more natural and human-like. This feature can be referred to as bringing the technology closer to human senses.

The Glass will be available to purchase late 2013. Its anticipated price will be $1000-1500. This device will certainly have a very promising potential in learning as it can revolutionise digital education. Its uses will transcend many existing digital products used in education.

Based on several years of research in the use of technology in education, the author foresees very interesting and practical learning and teaching applications for the Glass. The purpose of this paper is to explore and identify possible innovative educational applications of this amazing development.

Research Background

According to a survey by the author in 2002, it was discovered that most (about 58%) of High School students in the Darling Downs region of Queensland, Australia have a preference for visual learning with regard to quantitative topics. See Figure 1.

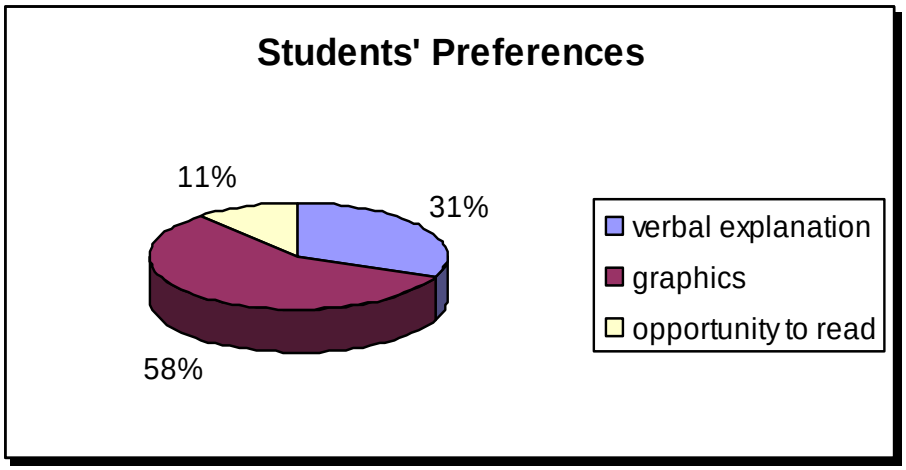

Figure 1 – High School Students' Preferences for Different Types of Media

Further research and studies in the area of multimedia by the author and his colleagues have re-confirmed the importance and effectiveness of visual features in teaching and learning materials (Nooriafshar and Todhunter, 2004). Figure 2 illustrates the students' learning modal preferences with regard to *Web Enhanced Multimedia Learning Environment (WEMLE)*. This learning environment is a visually rich multimedia system which was used as an instrument in the study. As Figure 2 shows the visual features and interaction with WEMLE appear to be the most popular amongst the 100 surveyed undergraduate and postgraduate students.

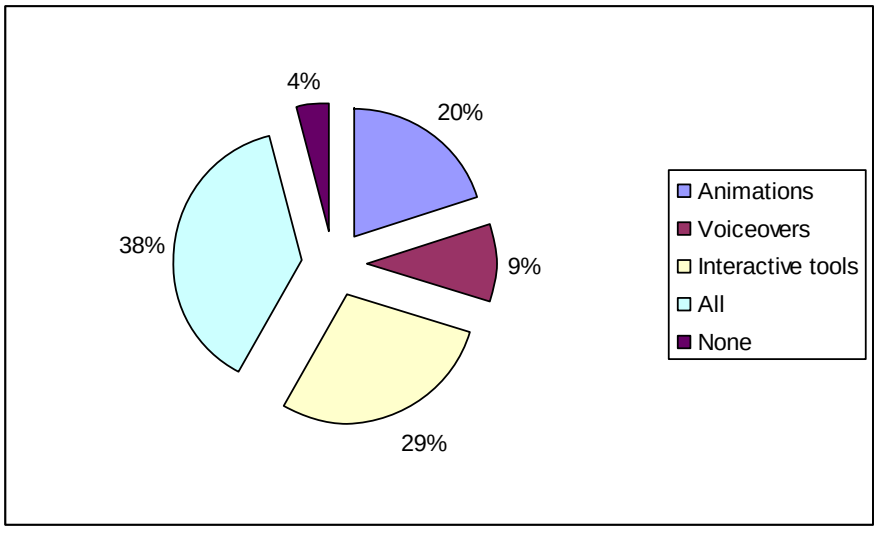

Figure 2 – Tertiary Students' Preferences for Different Types of Media

A recent investigation by the author on three groups of students from Australia, Japan and Canada indicated the effectiveness of visually enhanced multimedia approach in education (Nooriafshar, 2013). The investigation with every group included a presentation of the Project Management fundamentals using the specially developed multimedia system and a specially developed workshop. The workshop consisted of a test case study which was used as an instrument to gauge the learning effectiveness. Based on the students' performance in the test case study, it was established that the specially designed visually rich multimedia system had potential for effectively learning of the fundamentals of Project management.

Experiments with the Very Latest Technologies

The introductions of Apple's ios5 in 2011 and the latest hardware and software available on iPhone 4s and higher, have certainly added another dimension to learning. We can mention Apple iPhone's intelligent personal assistant SIRI as a specific example of innovation which can have amazing potential uses in education. This system has been introduced and promoted as an intelligent personal assistant which allows the user to set alarms, organize meetings, search the web and display the emails. Its, very applications can certainly go beyond those features. It can enable the user to hold an almost meaningful dialogue (not just commands) with the system. The developers are continuously enhancing the abilities and performance of the system. Hence, having conversation with an "intelligent" and knowledgeable machine is not a science fiction any longer. The system has a great potential for a variety uses including education.

The author has experimented with SIRI for language learning purposes by switching the language option of SIRI from English to French and German. The author, as an experiment, tried pronouncing "Que pouvez-vous faire pour moi" (What can you do for me). It was a pleasant surprise when the system responded by displaying all possible options in French. The author then asked, in French, "What is the temperature in Paris" (Quelle est la température à Paris en ce moment)? The system responded in French what exactly the temperature was for that time in paris.

After a few more attempts, it was realised that the system could only comprehend the exact pronunciation as by the native speakers of French. This was in fact a positive challenge. It forced the author to try and experiment with different ways of pronouncing certain words. For instance the inflections were altered. After several attempts, the system could understand many words and phrases uttered by the author. The author has also tested and tried the Japanese option of SIRI. It was very encouraging to note that it understood and responded to questions such "kyo wa tenki wa do desu ka" (Today, how is the weather) by talking back and displaying both text and charts. This kind of conversation can be a very effective way of pactising conversation and pronunciation.

The advantage of all this is that the system responds to the question or statement. A relevant response by the system is, perhaps, the best instant reward which provides a satisfying sense of achievement for the learner. Hence, one can establish a limited but quite natural conversation with the system. The experiment with German was also very similar. It should be noted that the future for the educational applications of this kind of technology is certainly very promising.

Other technologies such as Virtual Reality (VR) will allow the learners to be a part of the learning materials and play a key role in the learning process.

Although the term Virtual Reality (VR) is used for different purposes, the original concept refers to *immersive virtual reality*. The general concept of immersive virtual reality was developed back in the late 80s. In immersive virtual reality, participants interact with a world completely generated by computer which is a virtual replica of the actual subject.

As suggested by Beier (2004), one of the main characteristics of immersive virtual reality is that the environment is a full scale replica of the real world and it relates to human size. Hence, the participants get the feeling as if they are interacting with the real environment or subject.

Let us investigate how a VR multimedia can be implemented and used in language education. The learners will be provided with VR goggles, gloves and shoes. The gloves and shoes can be in the form of micro-sensors placed in appropriate body parts for input/output and interaction purposes. After wearing and attaching the goggles and the sensors, the learners will visualise, feel and hear themselves in an actual location. For instance, they can, virtually, be in front of the *Plaza de toros* in Madrid. They can physically (in a virtual manner) approach a virtual local and virtually ask by moving their hands and arms and their usual facial expression (smile, worried and desperate) *Dónde está la Stacion de taxis por favor?* The local pedestrian will smile back in recognition and encourage a foreigner trying to speak their language and point to the right corner. This scenario can be extended into a see, hear, touch and walk adventure too. Imagine entering a virtual shop and virtually touching and picking an object and asking *Cuánto cuesta* (How much)?

It is noteworthy to mention that the technology involved and required for the VR educational multimedia approach as described above is not an impossibility in an almost near-future. Although it is not possible to set up the above-mentioned experiment right now, it is reasonable to predict superior results as several senses will be utilised. We know that for thousands of years, human beings have acquired and processed information using a number of different senses. Hence, the use of different senses for information collection, analysis and remembering is something, which our brain can relate to very well. The introduction of Google Glass (Late 2013) is certainly a "giant step" towards realizing this scenario. Google Glass, to a large extent, can achieve the realisation of the above experiment. The next section discusses the main features and ways of using Google Glass.

Main Features and Methods of Using Google Glass

Google Glass or the Glass has been described as a computer which can be worn like glasses. The Glass is designed in such a way that it offers hands-free operation features. The wearer can interface and communicate with the Glass by voice commands. Usually a tilt of the head to a side and issuing the command "OK Glass" followed by the request prompts the device to act. Its potential uses, however, go beyond a hands free computer. It practically addresses the interface problem between human and machine. The tap, touch and pinch way of interfacing with computers in modern smart phones/tablets has certainly been a significant contribution to this problem in recent years. Back in the early 1980s, Edward Feigenbaum (founder of the Knowledge Systems Laboratory at Stanford University) described the keyboard as an unnatural way of interfacing with computers (see Nooriafshar, 1990). He also predicted that by the end of the previous century the keyboard way of communicating with computers would be phased out. His prediction was probably something close to having a "natural" and more intelligent dialogue between humans and machines. Although this prediction was not quite realised by then, many advances through intelligent voice recognition approaches such as Apple's SIRI have been achieved.

The most important aspect of the Google class is the way it facilitates a totally hands free and more natural interaction with the technology. In terms of the technological features, it should be noted that currently most of the smartphones and tablets are in possession of them.

After testing the Beta version of the Glass, Topolsky (2013) suggested that it is a completely new kind of computing device, designed to reduce distraction and created to enable humans to interact and communicate with the technology in a natural manner. One of the logical arguments in favour of the Glass is that when we all are trying to take photographs or videos of important events such as a child's performance at sporting activities, we are distracted from

seeing the real-life situation at the same time. With the Glass, however, the user can enjoy the real scenery and at the same time capture images.

The action is performed hands-free without using any buttons, adjusting anything or looking at or through the viewfinder or lens.

Google Glass with its augmented reality features will facilitate a forward-looking approach to education. This device will have tremendous potential in education. For instance students can wear these glasses and by looking at topics in the classroom, they can find the right answers from the Internet without hunching over the handheld devices. Students can read a book and at the same time give commands to Google Glass. They can take notes; take pictures of the relevant diagrams, charts and images. If they are not sure about something (topic, definition or terminology), they can simply find out by asking Google glass to search the Internet. Even capturing video/audio of the relevant parts of the lecture or presentation would be quiet useful for the future reference. They also interact with each other when necessary.

Google Glass is only the beginning of bringing the technology closer to the human senses. Future information technology products may also facilitate capturing, digitising, storing and transferring human thoughts as an independent medium directly to other sources. Imagine the ability of directly transferring an animation of a concept to a learner in a 'thought file'. After all, the language of thought is probably universal and is not based on a particular type of language. In a strictly natural way, we do not have to pronounce words in our thoughts to describe ideas. Our ideas can be "seen" in our thoughts. Perhaps these images are like Plato's Forms (*Plato's Republic*) or Aristotles' Essences (*De-Anima*).

In this way, most of the language-dependent barriers will be removed and we will achieve that ultimate level of internationalised information transfer and sharing.

Conclusions

It was reported that visually rich multimedia can provide a very effective teaching and learning environment. A virtual reality multimedia can even further enhance learning by incorporating more realistic images and visual features. This progress will lead to a situation where the learners could immerse themselves in the environment and interact with objects and scenarios in a dynamic manner.

The future technologies will enable us to interact with computers in a less formal manner. In other words, we will not have to sit in front of a computer, switch it on and then start typing and mouse-clicking. The main computer will be able to receive commands and requests remotely and produce output to various locations around us. The output can even be in the form of holographic images and sound. The speech will be controlled by the user. Hence, the user can choose any language for input or output. The user will be able to interact with the output in a natural manner by touching, separating, lifting and moving parts. Hence, a true virtual reality situation will be created. A development such as the Google Glass is definitely the beginning of this exciting journey which will impact education in many ways. It is envisaged that as soon as the Glass is available, the author will test its educational potential as suggested in this article.

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CARBON OFFSETTING BY QUEENSLAND LOCAL GOVERNMENT

Heather Zeppel

Purpose

Climate change and carbon mitigation are key issues for local government (Pillora 2011; Storey et al 2012; Zeppel 2012). Reports include advice and case studies on greenhouse gas mitigation actions for local councils, including offsetting (QLGA 2009; Storey et al 2012). This paper evaluates carbon offsetting actions implemented by Queensland local councils. As part of the broader national response to global warming, local government in Queensland faces the challenge of implementing policy, organisational and technical initiatives to mitigate its carbon emissions (LGAQ 2009). Australia is a signatory to the Kyoto Protocol, with a national target of 5% emissions reduction on 2000 levels by 2020. Local councils are now required to report their carbon emissions over 25,000tCO_2-e a year from a single facility (i.e. landfill) under the *Clean Energy Act 2011.* To date, 12 Queensland councils have been listed as liable entities by the Clean Energy Regulator: 10 larger councils from landfills (i.e. Brisbane, Gold Coast, Logan, Townsville, Gladstone, Mackay, Moreton Bay, Rockhampton, Sunshine Coast and Toowoomba) and two as gas suppliers (i.e. Maranoa, Western Downs). Some 40 Australian councils are now liable entities for the carbon tax. The carbon price of AUD$23t$CO_2$-e from 1 July 2012 also impacts on council operations through the increased cost of electricity and materials (LGAQ 2012). Councils are thus adopting eco-efficiency measures, and offsetting emissions, to reduce operating costs and carbon liability. In that context, this paper reviews carbon offsetting responses by Queensland local councils.

The Local Government Association of Queensland has published a *Climate Change Mitigation* guide (LGAQ 2009), including advice on carbon offsetting to reduce emissions. Carbon offsets are defined as "An investment in a project that reduces greenhouse gas emissions or sequesters carbon from the atmosphere" to compensate for emissions from other activities (LGAQ, 2009: 58). A regional carbon plan by five councils in North Queensland set a target of 50% reduction in carbon emissions on 2007/08 levels by 2020 from council operations, and a regional offset planting policy for revegetation (FNQROC 2011). The Council of Mayors SEQ previously supported regional carbon sinks with tree planting on council land in Ipswich, Redland and Moreton Bay in 2009, for 11 SEQ councils to offset emissions (LGAQ 2009). The climate change plans of four coastal councils in Queensland have set a goal of being carbon neutral by 2020 in their operations by purchasing offsets (i.e. Brisbane (2026), Cairns, Gold Coast, and Sunshine Coast) (BCC 2008). However, there is no state-wide climate change strategy for Queensland councils and no renewable energy, Green Power or other carbon mitigation/offsetting targets for local government have been set.

Carbon offsetting provides one avenue for local councils to mitigate or reduce their greenhouse gas emissions. Council vehicle fleets are often offset through Greenfleet and regional tree planting initiatives (Newman 2010). City councils purchase carbon credits to offset emissions from transport, or landfill (BCC 2008). Carbon offsets are sold in both voluntary (National Carbon Offset Standard) and compliance (Australian Carbon Credit Unit) markets. A local government carbon offset checklist recommended councils seek offset products that were accredited, independently verified, and provided other environmental benefits. Carbon credits from renewable energy, forestry, and methane reduction projects are sold by accredited offset companies such as Ecofund Queensland, Greenfleet, Greening Australia and other carbon brokers. Under the *Carbon Credits (Carbon Farming Initiative) Act 2011*, local councils can engage in offset projects through reducing landfill emissions, and reforestation. This paper evaluates carbon offsetting actions by Queensland councils.

Methodology
A climate change mitigation survey for Queensland councils was based on carbon mitigation actions recommended in the Cities for Climate Protection (CCP) program, and a desktop review of climate change plans and carbon actions listed on Queensland council websites (Zeppel 2011). The survey also adopted some questions from ICLEI's review of Australian (and New Zealand) councils in the CCP program (Hoff 2010), and previous climate change surveys of New South Wales local council. Sustainability officers at two large Queensland councils provided feedback on questions in the draft survey. The Queensland council survey included 36 main questions organised in five sections: A: Your Local Council; B: Climate Change; C: Climate Change Mitigation; D: Carbon Offsetting; and E: Preparing for the Carbon Price.

The survey included climate change responses, a checklist of 64 carbon mitigation actions, ranking of council motives for carbon actions, and open-ended questions on reasons for climate change actions by councils. This survey was circulated to all 73 Queensland councils, by email, post and follow-up telephone calls, during January to May 2012. A total of five City Councils (CC), 18 Regional Councils (RC), eight Shire Councils (SC) and one Aboriginal Shire Council (ASC) completed the survey (Zeppel & James-Overheu 2012). This paper reports on survey responses to section D on carbon offsetting actions by Queensland local councils. This includes council involvement in offsetting, types of offset providers/projects supported, and council motives and benefits from offsetting.

Findings
Out of a total of 433 carbon reduction actions adopted by 30 Queensland councils, less than 3% of council climate initiatives related to carbon offsetting actions (11). The main opportunities identified by Queensland councils to reduce their carbon emissions were through waste management and recycling (16), managing methane from landfills (15), planting trees on council land (14), green building design (12) and renewable energy (11). Planting trees on council land for carbon offsetting was preferred by four CC, eight RC and two SC. Just three councils in SEQ (1 CC, 2 RC) listed carbon offset markets or buying carbon credits as an opportunity to reduce emissions from council activities (e.g. landfill), with Sunshine Coast Council building a *'portfolio of offsets.'*

Seven Queensland councils were partly offsetting their carbon emissions, including five CC, the Sunshine Coast Council, and a coastal council. Townsville offset its *'community event Eco Fiesta.'* Three Regional Councils and one Shire Council in western Queensland planned to start offsetting in the next 12 months. However, 18 councils indicated carbon offsetting was not necessary (11), or not a priority (7) (Table 1). Most Shire Councils and three inland Regional Councils did not consider carbon offsetting was necessary, due to their small size lower populations, and being below the carbon threshold. Six other Regional Councils and the largest Shire Council focused on reducing their carbon emissions rather than offsetting. Not one Queensland council offsets emissions totally, although four large coastal councils plan to be carbon neutral by 2020 (i.e. Brisbane (2026), Cairns, Gold Coast, and Sunshine Coast). Brisbane City Council 'has offset its public transport and vehicle fleets' (Hepworth, 2012: 5), bought 100% Green Power since 2010, and $3.5 million for landfill carbon permits.

Table 1: Carbon Offsetting by Queensland Councils

Carbon Offsetting	Ab.Shire Council	Shire Council	Regional Council	City Council	Total
No - not necessary	1	6	4	0	11
No - not a priority	0	1	6	0	7
Yes - partially offset	0	0	2	5	7
No - next 12 months	0	1	3	5	4

A few City and Regional councils commented on their council's position or policy on carbon offsetting. This included offsetting as part of a carbon neutral policy (Gold Coast); an unofficial

position to reduce emissions first, then to utilise mandated offsets (Logan); and some initial investment in offsets (Redland). The carbon neutral plan for the Sunshine Coast Regional Council requires offsetting of residual emissions by 2020. Cairns Regional Council also has offsetting requirements as *'Council has carbon neutrality in its carbon reduction goal for 2020.'* Other coastal councils offset events, or wanted to learn more about carbon credits and offset guidelines, but it was a low priority for one inland council. South Burnett Regional Council was *'willing to investigate options that can be incorporated and enhanced within existing Council operations and the possibility of working with landholders and industry to provide carbon offsets or credits.'* It has evaluated carbon offset options (i.e. environmental plantings, native forest protection, landfill methane gas) and analysed the biosequestration potential of native forest growth in the South Burnett region.

Mainly larger city and regional councils have implemented or planned carbon offsetting. Ten Queensland councils (5 City, 3 Regional, 2 Shire Councils) in the survey supported carbon offsetting - by planting trees on council land, and/or in partnership with organisations involved in regional tree planting. Just four respondents had paid for carbon credits through an Australian offset provider. These included the Gold Coast and Townsville City Councils, Sunshine Coast, and Gladstone councils. Only the Sunshine Coast Regional Council had paid for carbon credits through an international offset provider. Three other regional councils had not discussed or decided on the type of carbon offset project. Only Redland and Townsville City Councils had purchased renewable energy to offset council emissions. The councils offsetting their emissions are applying it to vehicle fuel, and electricity for the council office and facilities (3/4). Townsville City Council offset fuel in hire vehicles used by staff. Two larger coastal councils offset events: *'community event-Eco Fiesta'* (Townsville), and *'Event based (air transport, electricity, fuel (car/truck).'* Logan City Council offset its printed materials, while at Redland City Council offsetting was *'general ie total emissions offset.'* There was ad hoc offsetting of airline travel by staff at Sunshine Coast Council.

Overall, 10 Queensland councils (5 City, 3 Regional, and 2 Shire Councils) nominated tree planting as their preferred carbon offset project - by planting trees on council land, and/or in partnership with organisations involved in regional tree planting. Two northern councils supported soil carbon as an offset method (Townsville, and one Shire). City council preferences for carbon offset methods were driven by cost, best return for investment, supporting local famers (soil carbon), and constraints on land or limited scope for some offset methods (tree planting). Regional councils also preferred offset methods that generated credits, aligned with council business, involved tree planting by community organisations, and provided tangible results in a short payback period. Mackay Regional Council reported they wanted to *'to learn more about the options available to Local Government for tree planting and soil carbon, there is just too much uncertainty at present.'* Sunshine Coast Regional Council preferred offset methods with *'potential to generate own credits, costs'* [i.e. landfill gas, tree planting, waste diversion]. One shire council sought *'longer term financial opportunities'* from carbon offset methods. Redland City Council noted they had *'limited scope for landfill gas and energy efficiency remains,* (and) *we have limited land for tree planting so that leaves...two'* [renewable energy, waste diversion].

Ten Queensland councils with offset programs supported Ecofund Queensland (4), Greening Australia (2), vehicle offsets with Greenfleet (2), Climate Friendly (1), and Conservation Volunteers Australia (1) – these focused on tree planting. Other offset providers preferred by councils were *'local accredited carbon offset companies'* (Townsville City Council), or *'through mixed service providers for our portfolio of offsets'* (Sunshine Coast Council). Larger councils preferred carbon offsetting by tree planting through recognised providers such as Ecofund Queensland and Conservation Volunteers Australia (CVA), based on their *'local capacity and knowledge'* to implement offsets, or *'previously used for other projects'* [CVA]. Gold Coast City Council noted *'This* [Ecofund] *was set up by the State Government for Queensland departments and LGAs.'* Another ten councils were either not sure or had not yet decided which carbon offset provider to support (2 City, 5 Regional, 2 Shire and 1 ASC). Redland City

Council noted that *'Some councils own large lots or have sizable rural areas, offering carbon sink opportunities'.* Some respondents were aware they could earn carbon credits from offset projects, or income by leasing land to tree planting offset providers. Only a few larger councils listed carbon offsetting as a mitigation action in a climate change plan.

Survey responses indicated that the main motives for Queensland councils to implement carbon offsetting (Table 2) were: 1) Council concern about climate change impacts; 2) Supporting biodiversity/conservation; 3) Promoting council as climate friendly; and 4) Financially supporting tree planting or renewable energy. Secondary motives for councils to implement offsetting were earning carbon credits and meeting emission reduction targets. These reasons to implement offsetting included: *'to meet emission reduction targets set by Council'* (Redland City), and *'to reach carbon neutrality, strategic decision'* (Sunshine Coast Council). For larger coastal councils, (i.e. Cairns, Redland, Sunshine Coast) their carbon reduction targets and/or goal of carbon neutrality are key drivers for carbon offsetting. However, 18 Queensland councils did not consider carbon offsetting a priority or necessary. Results may differ for local councils in other Australian states with different carbon policies. Further research is required on the drivers and barriers for carbon offsetting by local councils.

Table 2: Motives to Implement Carbon Offsetting

Motive to Implement Carbon Offsetting	**Number**	**Rank**
Major reasons to implement offsetting (> 5 responses)		
Concern about environmental impacts of climate change	10	2.2
The 'right thing to do' for the environment (i.e. conservation)	8	2.3
Promote Council as a climate friendly business enterprise	8	2.8
Financially support tree planting or renewable energy projects	8	2.8
Minor reasons to implement offsetting (< 5 responses)		
Generate income or earn carbon credits from carbon farming initiative	4	1.2
Other: *'meet emission reduction targets' 'reach carbon neutrality'*	2	1.5

Practical implications

This Queensland study found five city councils and two coastal regional councils were offsetting emissions from vehicle fuel and electricity, or community events. Councils with a climate change strategy or aiming to be carbon neutral (i.e. Cairns, Gold Coast, Redland, Sunshine Coast) were most likely to offset. The preferred offset action by councils was tree planting on council land or in partnership with conservation groups. Only a few councils bought carbon credits. Councils mainly preferred tree planting as a carbon offset method due to ancillary environmental and community benefits. Potential council benefits from offsetting related to earning or selling carbon credits, partnering with local businesses, or supporting private landholders. Many types of council remained unsure about carbon offset guidelines. Other barriers were the lack of a council policy on offsetting, limited land for tree planting, offsetting not aligned with council business, and the need to provide tangible environmental or financial benefits to councils. Key recommendations include councils developing a policy on offsetting for specific activities (e.g. vehicle fleet, electricity, events), and partnerships with conservation groups or landholders for tree planting projects with biodiversity benefits. Offsetting could also be required for council approval of events, or in council contracts for the supply of goods and services. Council planning schemes could direct offsets from regional tree planting to priority areas for revegetation (Newman 2010). These strategies will assist local government engagement in carbon offsetting projects with conservation benefits.

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EVALUATING FACTORS IN SUSTAINABLE ROAD CONSTRUCTION AND MANAGEMENT – A LIFE CYCLE APPROACH

David Thorpe

Roads perform an important connecting function for the community. At the same time their design, construction and operation are not always easy from the point of view of sustainability. Achieving sustainability in this process requires the undertaking of initiatives such as sound environmental management, water sensitive urban design, use of advanced and recycled materials, and environmentally responsible project management and construction. The contribution of such factors to a particular road project can be different for alternative options for constructing and managing the road. This can be an issue in comparing these options. A methodology is proposed to address this issue through calculating a weighted score of the sustainability related economic, environmental and social factors for each option, using a life cycle management approach that considers stakeholder requirements. As the variables in this process tend to be measured in a range of units and may be either quantitative or qualitative, each variable in a given road construction option is both given a weight and also assigned a suitable comparative score obtained though calculation for quantitative variables, or using a utility approach for qualitative variables. The calculated total weighted scores for various road construction and management options may then be compared when assessing the most sustainable option. An example calculation that compares the weighted sustainability for two road construction options is provided. The approach described is flexible and may be used in conjunction with other methodologies, and is also capable of being developed into a suitable computer based modelling tool.

Keywords: sustainability, roads, development, construction, management.

INTRODUCTION

While roads are important transportation and communication links, there are some concerns about their sustainability aspects. In particular, while roads have both economic and social benefits, there is concern about their impact on the natural environment.
The main environmental issues with roads tend to revolve around greenhouse gas emissions from the traffic they carry. They also have other potential environmental and social effects, such as their ability to impact on natural landscapes and on those who live near them.

However, it is possible to construct and manage roads in an environmentally and socially responsible manner. Another aspect of road sustainability is that roads, as a significant component of the transportation fabric of society, should be available for as much time as possible. In particular, major routes should wherever possible. If they are not, essential goods may not be able to be transported and there is significant impact on the economy. In the flood disasters in 2011 in Queensland, Australia, for example, some major transportation routes were unable to be used both during and for some time after being flooded, with consequent social and economic effect.

Roads are significant contributors to national wealth and are vital elements of the social fabric in many nations. They also represent a significant component of national infrastructure capital.

Given the tension between the environmental impact of roads and their importance in modern society, road authorities and governments have provided guidance on the planning, development and operation of roads in a sustainable manner. For example, the United Kingdom Stationery Office has provided a guide to sustainable highways for the use of local authorities (Department of Transport Office, 2008). This document provides advice for local authority engineers on the choice of sustainable materials and techniques for highway

maintenance and construction.

Similarly, the European Union Road Federation has produced a discussion paper on sustainable roads (European Union Road Federation, 2007). This particular document discusses the importance of reliable road networks in developing countries in the connection of communities (and hence their prosperity), the trend towards cleaner road transport, environmentally sound road design, and the ethical balance between the societal advantages of road provision and environmental sustainability.

While it is recognised that many aspects of sustainable roads are developed during planning and design, this paper concentrates on the construction and operation phases of the road life cycle. It uses a life cycle approach to demonstrate, from the point of view of stakeholders, a methodology for the evaluation of environmental, economic and social aspects of road construction and management. This approach focuses on the road pavement and surfacing, and therefore excludes road transportation activities (which would have been considered in the planning and design phases of the road life cycle) and the development of drainage structures, road furniture and similar construction.

Following a discussion of the relationship between the road and its environment, this paper discusses some potential issues in the construction and management of sustainable roads, discusses the road life cycle and investigates options for evaluating these factors using a strategic approach based on this life cycle.

THE RELATIONSHIP BETWEEN THE ROAD AND ITS ENVIRONMENT

To better understand the issues in sustainable roads, it is firstly important to understand the concept of sustainability, and then to understand how roads interact with their environments and communities.

The concept of sustainability used in this paper is based on the well-known definition of sustainable development used by Brundtland (1987), which is "meeting the needs of the present without compromising the ability of future generations to meet their own needs." Such sustainability, as commonly understood, has three components, all of which require to be kept in balance - economic sustainability, social sustainability and environmental sustainability. Thus, while from an economic viewpoint roads are required to be built and managed to a budget and provide economic benefit, it is also necessary to consider their impact on society and the physical environment.

Figure 1 shows a simplified view of a road within its physical, environmental and social environments. The road consists of a sealed pavement, along which flows traffic. It is built on a subgrade and interacts environmentally with the biosphere (atmosphere, lithosphere and hydrosphere). It also interacts with the economic environment (for example, construction and maintenance cost, benefits and costs of transportation, bringing business to local communities) and the social environment. The social environment in this model consists of three overlapping communities - the road owner, the road user and the external community.

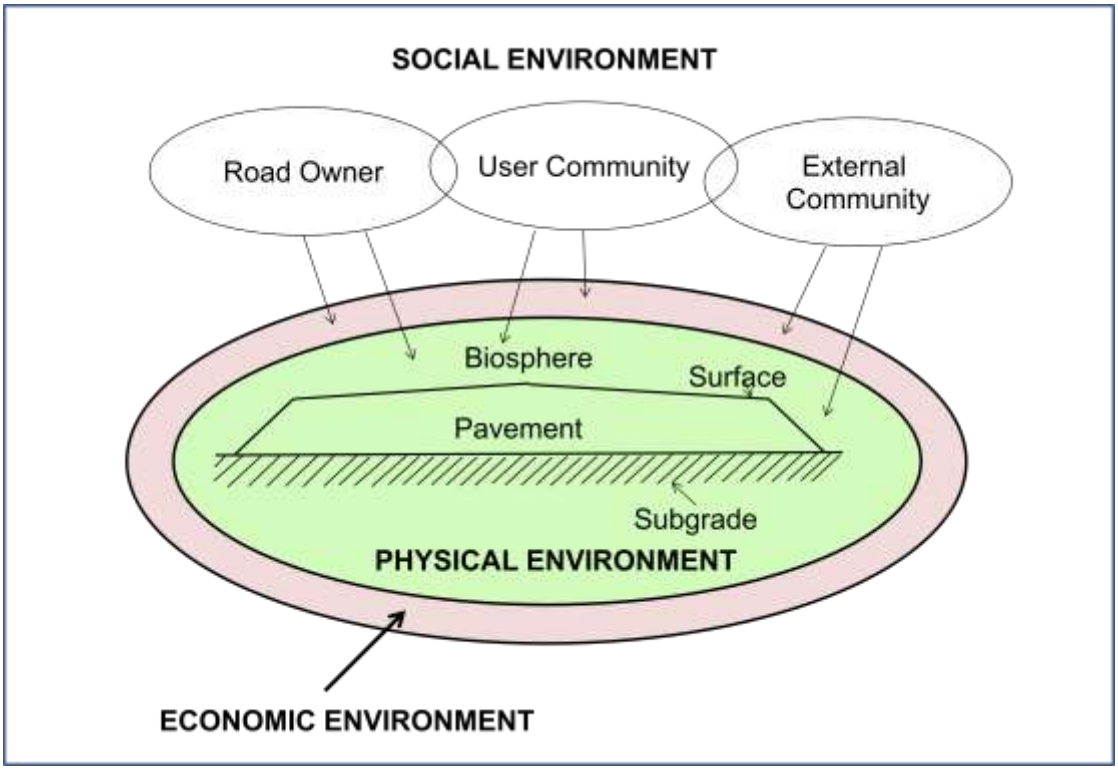

Figure 1: Relationship between road and its environments.

The owner of the road will expect the road to perform to a particular standard of service at minimum cost and provide maximum return on investment.

Road users expect the road to convey them as quickly, efficiently and smoothly as possible. They interact with the economic environment (for example, benefits and costs of transportation), and the social environment (for example, social benefits of using the road).

The external community consists of those people or organisations affected by the road. They may be property owners or tenants bordering or near the road, people who depend on the road for delivery of goods and produce, taxpayers who pay for the road, and other people are impacted by the road. The road may either deliver to this community benefits (for example, better access to transportation, improved property values) or costs (for example, noise, pollution, resumed property, reduced access to local facilities). They are likely to be the group most directly impacted by the presence of the road, and have considerable influence within the local social environment.

These communities, or stakeholders in the road, therefore each have different requirements of the road. Sustainable road construction will require consideration of these requirements, and of stakeholder expectations within each of the physical, economic and social environments. It will also be required to meet legal environmental management requirements.

FACTORS IN THE CONSTRUCTION OF SUSTAINABLE ROADS

The construction and management of a sustainable road therefore requires consideration of a number of factors related to both legislative requirements and good sustainable management practices. Some of the factors in this process, as related to construction and management of the road, are described below.

Road Material Selection and Use

As with buildings (Sattary and Thorpe, 2011), it is important to minimise the embodied energy in road construction and maintenance materials. For example, consideration should be given to the selection, subject to their suitability, of locally occurring materials for aggregates, in order to reduce embodied energy of the transportation effort of importing material onto the construction site.

Minimising embodied energy is enhanced by the use of recycled materials and the recycling of pavement and surface materials during road rehabilitation or replacement. The use of recycled aggregate is quite common and recycled glass has also been used for road or pathway pavements in Australia (Fisher, 2010). As with all materials, caution is required in using recycled materials. For example, it is important to take measures to reduce leaching of contaminants from residual Portland cement in recycled concrete aggregate (Petkovic and Engelsen, 2004). However, provided the materials for recycling are selected with care and knowledge about their advantages and disadvantages, judicious reuse of selected materials can lead to substantial embodied energy savings and decrease waste.

Another option for addressing embodied energy of material is in-situ stabilisation of existing materials, using materials like cement, lime, or powdered polymers. This process can be used to effectively utilise available materials without using non-renewable pavement material. It reduces the use of imported material (often to a small percentage of the host material), and it is claimed that the pavement life can be similar to that of a pavement using aggregate (Wilmot and Wilmot, 2003).

Road Construction Processes

As construction activities significantly impact on waste, energy use and greenhouse gas emissions (Wallace, 2005), sustainability has increasingly become important from a project delivery point of view. Consequently, there has been pressure for the construction industry to be more accountable for its social and environmental impacts. Road development organisations have also recognised the importance of sustainability, with organisations like the International Roads Federation supporting green public procurement, which aims to procure goods, services and works with a reduced environmental impact throughout their life cycle (Roads Australia, 2012).

The importance of sustainable practices in construction is being recognised by regulatory authorities. Thus, the United Kingdom has a strategy for sustainable construction that considers both the means (procurement, design, innovation, people and regulation) and the ends (such as climate change mitigation and adaptation, water, biodiversity, waste and materials) for sustainable construction (Department for Business, Innovation and Skills, 2008).

Planning and Design

The planning and design process defines the parameters of the road development, and also specifies the construction parameters. Sustainable planning and design may lead to reduced energy use, sustainable management of resources and waste management (Sinclair Knight Merz, 2009). Design also impacts on items like material selection and pavement design. For example, water sensitive urban design, which can be managed by innovations like permeable concrete pavements, is likely to impact on both construction and material selection and placement (Thorpe and Zhuge, 2010).

An important consideration from the social aspect of sustainability is safety in design. In Queensland, Australia, for example, a designer has an obligation to minimise risks in the design of a structure so that the design does not adversely affect the workplace health and

safety of persons either during or post construction (Queensland Government, 2007). This requirement has implications for the whole road life cycle.

Finally, one important consideration in both design and construction is ensuring quality of materials and construction processes. For example, control of variability (such as in the properties of materials) will contribute to improved and more predictable outcomes for the road over its life cycle (Thorpe, 1998, pp. 116-124).

Availability of Key Roads

In January 2011, there was significant flooding in Queensland, Australia. This flooding caused damage to infrastructure, including roads, and therefore impacted on society and the economy. One estimate is that the Queensland transport sector lost AUD 467 million in revenue during this month (IBISWorld, 2011). The temporary loss of main connecting roads at such a time underlines the requirement to construct and maintain key roads so that they remain open as much as possible.

THE FACTORS AS PART OF THE ROAD LIFE CYCLE

While it is necessary to comply with legislation and it is highly desirable for road development to achieve recognition for sustainability, stakeholders are also likely to expect optimum sustainability performance for a particular road. To achieve this goal, it is necessary to consider and assess the contribution of the factors in the construction and management of the road over its life cycle. As a first step in this analysis process, the factors in sustainable road construction may be classified by the phase of the road life cycle in which they occur, and the stakeholder group impacted by the factor.

The road life cycle can broadly be subdivided into planning, development and operational phases. Each of these phases can be further subdivided into sub-phases. For example, the development phase may be subdivided into analysis, design, and construction. The operational phase may be subdivided into operation and retirement (Thorpe, 1998, pp. 22-25). For the purposes of evaluating sustainable construction, the life cycle may be considered as starting at the design phase.

Table 1 illustrates some of the factors, based on those discussed above, in sustainable road construction, their relationship with the life cycle phase in which they occur and the potential stakeholder groups interested in or affected by them.

Table 1: Selected sustainable construction factors by life cycle phase and stakeholder group.

Factor	Life Cycle Phase	Economic Environment	Physical Environment	Social Environment
Energy usage over life cycle	Construction Operation	Owner	Owner External	External
Use of locally occurring materials	Design Construction	Owner	Owner External	External
In-situ stabilisation	Design Construction Operation	Owner	Owner External	External
Use of recyclable materials	Design Construction Operation	Owner	Owner	External
Sustainable procurement practices	Construction Operation	Owner	Owner	External
Management of waste	Construction Operation	Owner External	Owner External	External
Innovative sustainable construction	Construction Operation	Owner External	Owner External User	Owner External User
Water sensitive design and construction	Design Construction Operation	Owner External User	Owner External User	External User
Safety in design	Design Construction Operation	Owner External User	Owner External User	Owner External User
Quality of materials and processes	Design Construction Operation	Owner External User	Owner External User	Owner External User
Ability to use road at all times	Design Construction Operation	Owner External User	Owner External User	Owner External User

Most of these factors listed above are measured in different units. However, they require consideration in any evaluation of sustainability on an equivalent basis. In addition, several are qualitative in nature. They may also be stochastic in nature and have some interdependency. In order to simplify and make practical the analysis process, a methodology, using three stages, that assumes in the first instance that variables are deterministic and independent, is proposed below. This process is based on, but considerably simplifies, that of Thorpe (1998), and may be applied at either the individual stakeholder level or from an overall viewpoint. The stages in it are:

- Adopt a scoring system that enables factors expressed in different units of measurement to be included in the evaluation on an equivalent basis.
- Weight the factors with respect to each other.
- Calculate a weighted total score combining the weights and the scores of individual factor values.

Adopting a scoring system that to allow the factors to be considered on an equivalent basis

In order to provide an approach that permits a mix of quantitative and qualitative variables to be combined in the same analysis on an equivalent basis, it is proposed that each variable in the evaluation be assigned a score on the same rating scale (for example, ranging from zero for the lowest value to five for the highest value). For quantitative variables, the score would be assigned on the basis of calculation based on a formula that relates the scores to actual variable values. For some factors (for example, energy use), the lowest value of the variable may correspond to a high score and vice versa, and in such cases an inverse formula would be used. Thus for energy use, for example, low energy use might have a score of (say) 4.5, and high energy use might have a score of (say) 0.5.

Assessment of qualitative variables (for example, use of good water management practices) tends to be more subjective. While such variables can be ranked on an ordinal scale, one approach to assigning a score to them is by assigning to them a utility value derived from a risk profile based on the indifference point between various combinations of worst and best expected outcomes, given the probabilities of receiving each (Hamburg, 1970, pp. 631-644). For example, the benefit of a particular road could be traded off against the risk of poor drainage practices resulting from the construction process. In this case, a score of five, for example, might be allocated to best practice sustainable water management and a score of zero to poor practice such as blocking natural water flow. Other scores would be between these extremes, the exact profile of scores being determined by the risk profile of affected stakeholders.

A disadvantage of this process is that it is not easy to accurately assign utility values without an understanding of stakeholder views and what they might accept as a trade-off between risk and return. Therefore, it may be necessary to convene public meetings, undertake surveys, or undertake other stakeholder consultation activities.

Weighting the factors

There are a number of options for weighting each of the factors on a comparative basis. One approach is to use a relative importance index (for example, Lim et al., 1995). Another approach is to use a compared comparison approach to rank the variables, in which variables may be assigned weights by judgment, or by sophisticated tools such as the Analytic Hierarchy Process (Saaty, 1990). This last approach is particularly useful where there are a range of sub-factors involved.

Another approach is based on the rational management process discussed by Kepner and Tregoe (1981). This approach formulates a goal statement (for example, maximise life cycle construction sustainability for a particular road), and considers the objectives supporting this goal by dividing them into musts (which are not negotiable) and wants. The wants are then grouped into related variables, and the groups are ranked using pair wise comparison or other techniques (Thorpe, 1998, pp. 182-184).

In any of these approaches, which tend to be designed around qualitative variables, benefit and cost may be may be considered separately from the analysis, or else assigned a score and included in the analysis.

Calculating a weighted score

The final step is to calculate a total weighted score by summing the individual weighted scores, as follows:

$$T = \sum_{i=1}^{n} WiSi$$

Where:

T = Total Weighted Score

Wi = Weight for factor i

Si = Score for factor i

ILLUSTRATIVE EXAMPLE

As an example, consider a two-lane sealed road, of 9 metres width and 5 kilometres long. There are two options for its construction, which are shown in Table 2. Option A is a bitumen sealed pavement constructed from recycled aggregate. Option B is constructed of permeable concrete with the aim of good storm water management. Both options have the same expected service life of 20 years. Possible construction sustainability factors for these roads are compared in Table 2.

Table 2: Evaluation of total weighted scores for two road construction options.

Factor	Weight	Option A	Unit Score	Total Score	Option B	Unit Score	Total score
Energy use over life cycle	0.20	Low – embodied energy 0.1 MJ/kg	4.00	0.80	High – embodied energy 1.9 MJ/Kg	1.00	0.20
Sustainable material use	0.20	Use recyclable materials	4.00	0.80	Permeable concrete	1.50	0.30
Waste management	0.15	Very good waste management potential	4.00	0.60	Good waste management potential	3.00	0.45
Innovation in construction	0.15	Potential for some innovation	2.00	0.30	Significant scope for innovation	4.00	0.60
Water management	0.20	Standard water management practices	2.00	0.40	Water sensitive - permeable pavement	4.50	0.90
Availability at all times	0.10	Road unavailable for average of one day per year	1.00	0.10	Road is drivable quickly after storm as undamaged	4.00	0.40
TOTALS	1.00			3.00			2.85

This table omits factors (such as service life) that are common to both options, and also omits

factors, also common to both options, that are related to sound sustainable management, such as meeting and managing stakeholder requirements, sustainable procurement practices, and managing quality and safety.

In this table, the weights (assessed by judgment) of each of the listed sustainability factors are shown in the column to the right of the factor. For each option, there is a brief description of the extent to which the factor is met, plus an estimated score allocated through considering its utility to the owner, and an overall weighted score for the factor (named "total score" in the table). The weighted scores are aggregated.

Option A is estimated to cost AUD 5 million to construct and AUD 120,000 per year to maintain. Over the 20 year life of the road, using an inflation free discount rate of 6% per annum, the present value to the owner of this option is approximately AUD 6.376 million. It overall sustainability score is 3.0 out of a possible 5.0.

Option B is estimated to cost AUD 5.5 million to construct and AUD 60,000 per year to maintain, leading to a present value of cost to the owner over 20 years at 6% per annum of AUD 6.188 million. Its overall sustainability score is 2.85 out of 5.0.

Thus while Option A is slightly more expensive on a whole of life basis to develop than Option B, it has a slightly better life cycle sustainability score. As neither option is clearly, on an overall basis, better than the other, further investigation should be undertaken, including a sustainability analysis of the views of the user and external stakeholder groups. The allowable construction budget also requires consideration. If, for example, there were only AUD 5 million available for construction, Option A would probably be selected given the closeness of the other evaluation results.

CONCLUSION

The methodology discussed in this paper evaluates, using a life cycle concept, options for constructing and managing roads in as sustainable manner as possible.

As illustrated in the example, this methodology is conceptually simple and uses a scoring system based on principles similar to those of rational management. While it may be argued that the proposed evaluation methodology is similar to that of green rating tools, it is more flexible than such tools; considers all of economic, environmental and social aspects of sustainability; takes account of the views of all stakeholders; and focuses on the construction and operation phases of the road.

Its flexibility also allows it to be used in conjunction with other methodologies. The worked example, for instance, uses a two stage evaluation, which calculates the present value of life cycle cost and separately evaluates, using a proposed weighted scoring system based on utility, life cycle environmental and social sustainability. It could alternatively have considered combining economic and non-economic factors in a single figure if it was considered that doing so resulted in a better evaluation.

There are disadvantages with this approach. The main disadvantage is the subjectivity and difficulty in assigning utility scores unless extensive consultation is undertaken. The methodology also assumes independence of variables. This may affect its accuracy. However, steps can be taken, such as careful checking of dependencies with respect to the likely impact on the final result and the use of techniques such as conditional independence of the variables with respect to factors common to all options. Finally, the methodology as presented also does not consider the stochastic nature of many variables. This weakness can be addressed through techniques like sensitivity analysis.

In conclusion, the proposed methodology uses a relatively simple approach to the evaluation of the sustainability aspects of road construction. While it may have some disadvantages, it is capable of enhancement through approaches like the Analytic Hierarchy Process to better weight variables and extend the detail of analysis, and it can be extended to improve its rigour through other considerations such as stochastic variables. It can also be developed into a suitable computer based modelling tool.

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ASSESSING THE IMPACT OF TEAM LEARNING ON TEAM PERFORMANCE

Peter A. Murray and Con Korkofingas

Purpose:

The aim of this research is to assess how team learning practices influence team performance. There is an increasing call by scholars to link organizational learning (OL) - and the change it underscores - to organizational performance. For instance, scholars across disciplines have identified the need to link performance outcomes to firm-specific practices and processes (Boselli, Dietz and Boon, 2005; Guest, 2011; By et al. 2011; Graetz and Smith, 2010; Boxall and Macky, 2009). For example, in both the HRM and Change Management literatures, causal effects between intervention variables and financial performance are unclear, ambiguous, and often tenuous at best (Torre and Solari,2012). The field of OL is not just about frameworks and interventions as a source for changing behavior; it is also about actual processes and practices that lead to tangible outcomes. This paper is an empirical assessment of how methodical and emergent learning practices lead to increased team performance. Both learning practices were evaluated across contexts most common to organisations including Knowledge Sharing, Change, Organizational Learning 1 (intuiting and interpreting), Organizational Learning 2 (shared learning), Power and Conflict, Leadership and Other. The results help to bridge the gap between learning frameworks that help to articulate organizational behaviour on the one hand and actual learning practices that lead to increases in performance on the other.

Design/methodology/approach:

A quantitative research process was used to develop a survey of team learning practices related to the methodical and emergent learning practices of 89 supervisor of cross functional teams, 150 team members including team leaders. Data was analysed using SPSS.A broad cross-section of cross functional teams was represented by industries ranging from manufacturing, banking, information technology, and hotel and tourism with approximately even percentage representation. The survey asked managers to rate their teams current practices on a *Likert* scale of 1 to 5 (from 1=experimental routines to 5=interactive routines. In addition, learning practices were assessed by developing a range of team performance measures including 1) a summary measure from a series of questions relating to team practices and how these led to team performance, a five-point category scale that asked managers to rate their team performance in terms of achieving objectives, and 3) a five-point category scale using team objectives to measure team success from 'very successful' to 'very unsuccessful.'

Findings:

The findings indicated that the overall model developed for the research had a number of significant relationships between learning practices and team performance. The results suggest that three of the seven contexts (Knowledge Sharing, Change, and Power and Conflict) are significant at $p < 0.05$, in explaining category probability. The positive results suggest that emergent learning practices across these contexts lead to higher levels of significance on the 'meeting team objectives' scale. The results also indicate that six of the seven contexts had a significant impact on the category of team success. The only context which was not significant

is shared learning. For five of the six contexts, the results were positive. In comparison to teams that displayed methodical learning practices across contexts, related to emergent learning higher category levels on the team performance scale. Relative to teams that displayed emergent learning practices were more likely to meet team objectives.

Research Limitations/Implications:

The results are limited by a smaller number of manager's representation in cross-functional teams. With a much larger research sample, it might be more plausible to generalise the results across different types of teams such as semi-autonomous teams and project teams. It may be difficult to generalise these results to other industries; a stronger focus on one industry might yield different results from another. A research methodology that captures a multi-method research approach may be more useful in testing the results of the research in order to achieve greater triangulation of the data.

Practical Implications:

Scholars more recently have commented on the causal distance between learning inputs and outputs such as financial performance or team performance goals (Murray and Millett, 2011; Guest, 1997; Boselli et al, 2005) including the problems of focusing on the performance of policies as distinct from practices (Wright and Boswell, 2002; Van den Berg, Richardson and Eastman, 1999).

Theoretical frameworks and practical application should equally be concerned with enhancing organisational performance with a focus on who benefits from change, the outcome of change, and the need to fill in the gaps between theories and empirical evidence (e.g. how learning practices influence dynamic capabilities) and how knowledge is co-created (Argote, 2013; By et al, 2011; Graetz and Smith, 2010; Antonacopoulou, 2009). This research accordingly has practical implications and helps to close the gaps between strictly theoretical frameworks and actual practices linked to performance.

Originality/Value:

Given that this paper assesses the impact of learning practices on team performance, it adds to a critical area of research that has been missing in the literature. For example, Paauwe and Boselie suggest that many scholars use a design labelled post-predictive approach because it measures HR practices after the performance period resulting in identifying practices predicting past performance (2005: p. 72). To the extent that managers were asked to predict performance based on the current learning practices employed in their teams, this research goes some way towards determining how actual practices influence performance.

SELF-DIRECTED LEARNING ENVIRONMENTS OF FARM BUSINESSES *CASE STUDIES IN QUEENSLAND*

Ann Starasts

Introduction and research value

Rural business managers are increasingly juggling economic and environmental pressures as they strive to optimise productivity and maximise profitability for their farm business. This research explores the self-directed learning environments of 16 grain and cotton growers in order to inform future development of digital learning support tools.

Rural industries have a wealth of available information online and formal industry training activities is slowly moving online. Examples are Sheep and Wool industry webinars (Leading Sheep 2013, Futurebeef 2013) and there are collections of digital information and training tools available for specific industries through Youtube videos, audio programs and CD's.

These are available to farm managers online and anytime.Field-based workshops, farm walks and group activities serving as training and participatory group learning are organised by Research and Development providers and agricultural organisations on a timely manner through the season in a range of locations throughout Queensland.

These resources and activities, both online and in the field provide and facilitate learning opportunities for farm managers largely from a community or mass approach. Little focus appears to occur from the farmer's perspective in terms of self-directed learning, and yet decision making for individual farm management occurs at the individual farm business level. An exploration of the learning and information environments at this level will help understand farmers' interface with and use of industry-based online information and services. This will assist future development of digital systems of information and learning support that enable farmers to further personalize their information seeking and learning.
Understanding of farmer self-directed learning environments may have additional implications in terms of the potential development of pathways from self-directed learning through to formal learning, and potentially higher education using digital personalized learning.

Literature

There have been few studies of individual farmer approaches to learning and even less in relation to exploring and describing learning environments. Ingram (2010) is one study that identified technical and social dimensions in farmer learning about reduced tillage. The importance of learning at the individual farm level was highlighted, along with experimentation and the use of networking to validate and reflect on this. This social dimension to learning was hindered by the fact that some farmers were not prepared to share information about their experiences due to fears and competitiveness.

Kilpatrick and Rosenblatt (1998) found that farmers may prefer to actually seek information themselves in their learning (i.e. in a self-directed sense) rather than attend training. They found independence, familiarity, preference for known sources, lack of confidence and fear were potential reasons.

Eastwood (2008) also highlighted the individual farmer in his study of dairy farmers learning about precision farming systems. He found that the focus was on the technology rather than farmers as end users. He found that learning processes within precision dairy systems did not go far enough in empowering farmers to be self-learners.

Franz et al (2010) identified the need for focusing on local learning opportunities and opportunities for making connections (with experts) as well as the importance of farmers'

values. They suggested a need to update information about farmer learning preferences as information technologies change.

Previous studies of farmer learning are therefore highlighting the importance of learning at the individual farm level in a self-directed sense. A more extensive understanding of this learning environment across a wider range of learning topics will add value in considering development of innovative digital technologies with possible wide application.

This paper reports on the exploration of farmers' self-directed learning environments where individuals are learning about varying topics.

Research approach

The research took the form of a collective case study of 16 purposively chosen farmers within the grain and cotton industries in south Queensland. The grain and cotton industries were chosen because of their significance to rural Queensland and because the industries had significance across a range of regions within Queensland (including the relatively isolated south western Queensland and central Queensland regions).

The study used qualitative research methods to identify key descriptors of the learning environments within which participants were undertaking self-directed learning projects. A constructivist approach (Holstein & Gubrium 1994) allowed for participants to take centre stage.

Longitudinal studies based on semi-structured interviews and learning and information-seeking protocols were performed over an 18-month period. Interviews and observations were the key methodological tools for data capture as these methods would enable contextual issues to be captured. Data collected from interviews and protocol analyses was recorded in the form of transcripts, and along with field notes provided the basis for analysis in terms of pre-set categories and to identify emergent categories.

Research Findings

Exploration of participants' learning environments

The context within which each participant was learning was highly specific in terms of their situation, need for familiarity, readiness to learn, need for it to be experience-based and social, limitations and their level of isolation. Each of these is briefly discussed with participant quotes.

Sense of situation

Learning projects chosen by participants were highly specific in their relation to individual farms, soil types, equipment, skills and labour and the information sought was quite specific.

An example is one learner who was establishing a permanent bedding system for his cotton crops, but he saw his information needs as very specific because of his combination of farming equipment and the various widths of his equipment. *'It's the first year, and I'm making a few refinements, semi permanent bedding….I'm always thinking of things that are relevant. I haven't talked to anyone else, but I would like to talk to them if they were farming at 24 m strips, even if they were at Moree.'*

Another was exploring nitrogen management in his cropping system indicated that he did not see information from outside his local area as relevant: *'I'll only study [experiences] in our area, Nindigully and the Darling Downs are too far away.' He* does not take notice from a DPI trial 300 km away as he considers it irrelevant.

Experience-based

Participants' own experiences and information about the experiences of their peers formed a major information source for their learning and this strongly defined the environment within

which they were learning. Information sought was mostly about others' experiences.
'[I'm] really trying to work out a crop rotation. Six months [ago] I designed one, now [I've] thrown it out the door, [it's] not practical, …… A lot is based on this harvest, grain out of lucerne.' Jim: '*We belong to Conservation Farmers [group] We used demonstrator planting equipment. We didn't plan a range of [information] sources, but it was a range of experiences.'*

Social
Participants wanted to supplement their experiential learning with social learning approaches. They wanted to look to their personal familiar contacts and their experiences in seeking information to support their learning. These contacts included family, friends and peers, consultants and advisers. Contacts were of specific value for participants as they provided new information, a familiar experience and could share experiences, perceptions and reactions.

'We've been talking to a network of people, everybody is in the same situation. People are at their wits end, they don't know which way to go. We're talking to others even more so now, comparing our end of financial year figures and production. We've all produced a lot of grain and we're doing a lot, but we haven't made any money. Our son, Michael has a number of people and he spends lots of time on the phone at night discussing what they're doing.'

Familiarity
Participants chose methods of learning and accessing information with which they were familiar and comfortable. For most participants, this meant learning largely in isolation, even when their neighbours may have been learning about the same issue. For others, this meant relying on familiar contacts rather than seeking out new contacts or information that may have been more useful.

One participant appeared to have been learning largely in isolation from others, relying on articles he had read and the help of his family's experiences rather than speaking with local farmers.

Another relied on his own experience mainly in his farm projects. When he needed new information, it was largely from people he knew from around the district and did not appear comfortable with the idea of seeking information from people or sources with which he was unfamiliar.

Timeliness and readiness
Participants exhibited varying stages of readiness to learn or access information with respect to new approaches. Reasons for this were both personal and seasonal.

'We'd like Futureprofit [farm management workshop series] all over again. We'd just bought the new farm when the workshops were on and we didn't have any financial records or didn't know what grew on our farm. Now I'm ready for Future profit…. The future profit approach was good. If you didn't do what you wanted at the course, it was your own fault, there was plenty of opportunity to change the program. We just weren't ready at the time.'

Isolation
The highly specific nature of learning projects in terms of information needs, comfort, readiness and commitments, and, in some cases, coupled with the physical isolation of properties, meant that some participants were often learning in isolation.

'Our local Queensland Graingrowers Association [folded]…everyone has been sourcing their own information (for their learning). There's not many rural meetings unless there's a field day….I could go to a lot more field days.'

Limitations on learning and information seeking
Current personal work and time commitments and dry seasons had limited most participants in their ability to progress with learning and information seeking.

'With cotton there's meetings and seminars etc. If I was only a manager I could go, but I've got to do all the work. Unless it's easy and quick and simple, your time is too precious and if you get on [the internet] and can't find (anything to help you with your project)..you give up.'

Conclusion

The strong focus on participant's property, farming activities, and business in participant's learning meant that their physical, social and financial resources contributed to the individual learning environment and information needs. This has implications for potential development of digital learning tools in that these need to be defined and form the basis for the learning content. Tools enabling farm and farmer parameters to be entered prior to execution may contribute to supporting this in learning processes. The general information and factsheet approach of many agricultural organisations could be replaced with apps enabling input of specific farm characteristics.

Learning was strongly characterized by participants having experiences and sharing these. Digital tools that enable the representation of these (such as case studies and images, Youtube) and the learner's reflections on these would potentially add value to farmer self-directed learning.

Learning via social means was a very important facet in this study. Potential new digital learning tools should support dialogue and sharing of experiences, activities and outcomes, and allow users to widen their community for learning as suggested by Kilpatrick and Rosenblatt (1998).

The familiar and timely focus of participants learning was evidenced in the fact that participants largely learn through familiar activities and processes within their comfort zones. It is suggested that any development of digital learning tools planned for farmer use should be developed by and with farmers, and training and support provided to enable a familiar learning environment. Eastwood (2008) highlights co-development of technology.

Limitations

This study was a collective case study of 16 participants farming within the industries of grains and cotton in south Queensland in the early 2000's. The highly situational nature of participants' learning may mean that these findings have limited application to other locations and industries. The similarity of findings with other studies in other locations and times (Ingram 2010), in other industries (Eastwood 2008) may point to some transferability.

The use of information technology applications now available to assist farmer learning (Youtube, social media, blogs) which did not exist at the time of the research may have played a role in developing new farmer learning approaches and in defining new farmer learning environments.

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AN EXPLORATION OF ACCESS TO AND USE OF MOBILE TECHNOLOGIES FOR LEARNING ACTIVITIES AMONG HIGHER EDUCATION STUDENTS

Angela Murphy, Helen Farley, Warren Midgley, Brad Carter, Michal Lane, Abdul Hafeez-Baig

Introduction

Recent research suggests that mobile technologies offer unique opportunities for students to become more engaged with learning activities beyond the boundaries of the learning management system (Matias & Wolf, 2013). Mobile technologies have the potential to facilitate collaboration and access to information resources anytime and anywhere. As a result, many educational researchers are exploring the potential for mobile technologies to enhance student learning experiences and mobile learning is becoming one of the fastest growing areas within the field of ICTs in education (Pegrum, Oakley & Faulkner, 2013).

Due to the faced paced changes in mobile technologies, education institutions are cautious about investing resources in providing access to the latest devices and technologies. Education institutions are also often hampered by organisational culture and entrenched processes in their potential wide-scale support for innovative technologies (Maringai, Skourlas & Belsis, 2013). Development of environments that support students who wish to use their own devices to suit their needs and contexts has been proposed as a solution to overcome these challenges (Gosper, Malfroy & McKenzie, 2013). This would enable higher education institutions to focus resources on the provision of infrastructure to support ubiquitous access for mobile devices to university systems and infrastructure. Despite the apparent benefits of encouraging the use of mobile devices for learning purposes, few higher education institutions in Australia have implemented systems to enabling mobile access to university networks in a platform independent manner.

This study is designed to identify the access students currently have to smart mobile technologies and whether they are currently using these technologies to support their learning at any time and from any location. A subsection of preliminary findings from the survey are presented and implications are briefly considered. The findings from this pilot study will be used to refine the survey instrument for additional data collection activities.

Literature Review

The increasing processing power, improved accessibility and enhanced applications embedded in emerging mobile technologies has created a challenge for higher education institutions who want to provide students with high quality and sustainable technology rich environments. Smart mobile technologies, such as tablet computers and smartphones, offer advanced computing abilities as well as access to internet based resources without time or place constraints. The functionality of these devices are continuously enhanced through the inclusion of features from established technologies such as personal digital assistants (PDA), portable media players, GPS navigation, digital cameras and eBook readers (Alley & Gardiner, 2012). This has resulted in devices that enable the development of ubiquitous learning environments that combine real-world and digital world resources.

A research study conducted by the research organisation Frost and Sullivan (2012) revealed that 41% of Australian residents currently own a smartphone and ownership is expected to increase to 65% by 2017. Approximately 13% of the population own tablet computers and ownership is expected to increase to 29% in 2017. Research commissioned by the ACMA (2013) also found that smartphones and tablets are not being used as a substitute for other devices already used to access the internet, but rather are being used as an additional device. According to this research study, more than 90% of tablet users also access the internet using a laptop computer and more than 80% access the internet using a desktop computer or

smartphone.

Published research studies that have investigated student access to information and communication technologies offers mixed results. Research conducted by Oliver and Whelan (2010) revealed that almost every student at that stage owned a mobile device, of which many were web enabled. Highly publicised research conducted by Kennedy, Judd, Churchward, Gray, and Krause (2008) found that although Australian first year university students had widespread access to technology, including mobile devices; these technologies were used primarily for entertainment. A conclusion of this research study was that most students do not have sufficient digital literacy skills to support the use of these technologies for academic purposes. A more recent survey of 10,269 students undertaken by Gosper, Malfroy and McKenzie (2013) shortly after the release of the iPad Tablet computer in 2010 revealed that only 5% of students frequently used a tablet computer in their everyday life. No information about use of smartphones was presented in this study.

Mobile technologies have changed rapidly since these studies were conducted, with smart phones replacing the use of web-enabled feature phones. Few studies have been published that have undertaken data collection activities since 2010 to explore the types of technologies owned by students and the manner in which they are using these technologies to support their studies.

Research method

Research aim

The aim of this research study is to identify the types of mobile technologies that students have access to as well as the extent to which they are using these technologies for informal learning purposes. A quantitative survey was designed with 28 closed and three open form questions to achieve this aim. The survey was divided into four sections: 1) student demographics, including questions about gender, age, current employment, and hours available for study each week; 2) the quality and availability of internet access; 3) ownership and access to mobile devices; and 4) usage of mobile devices to support learning activities. Participants were asked about their access and use of both mobile and tethered technologies such as desktop and laptop computers to enable comparisons between them.

Data collection and analysis

The survey was hosted online using the Qualtrics survey platform and designed to include interactive drag and drop features. Data collection for the pilot stage of the project occurred between March and May 2013. Course examiners from 17 online courses were asked to email a survey invitation to their students. Four faculties at the University of Southern Queensland were represented in the data collection activities: Faculty of Sciences, Faculty of Business and Law, Faculty of Arts and the Faculty of Education. Based on the results of the pilot, the survey instrument will be refined and further data collection activities will be undertaken. The data file was compiled in SPSS for Microsoft Windows version 19.0 and analysed using descriptive methods.

Demographics of participants in the research sample

A total of 38 completed responses to the online survey were obtained. The majority of the sample represented Australian residents (31, 82%). The remainder were international students from New Zealand (n=3), Malaysia (n=2), the U.S.A. (n=1) and South Africa (n=1). The sample consisted of both full-time (20, 53%) and part-time (18, 47%) students. A larger proportion were studying externally or online (27, 71%) with 11 studying in an on-campus mode (29%). The sample consisted equally of male (19, 50%) and female participants (19, 50%). The age of students ranged from 17 to 61 with a mean age of 34 (SD=11.04). The

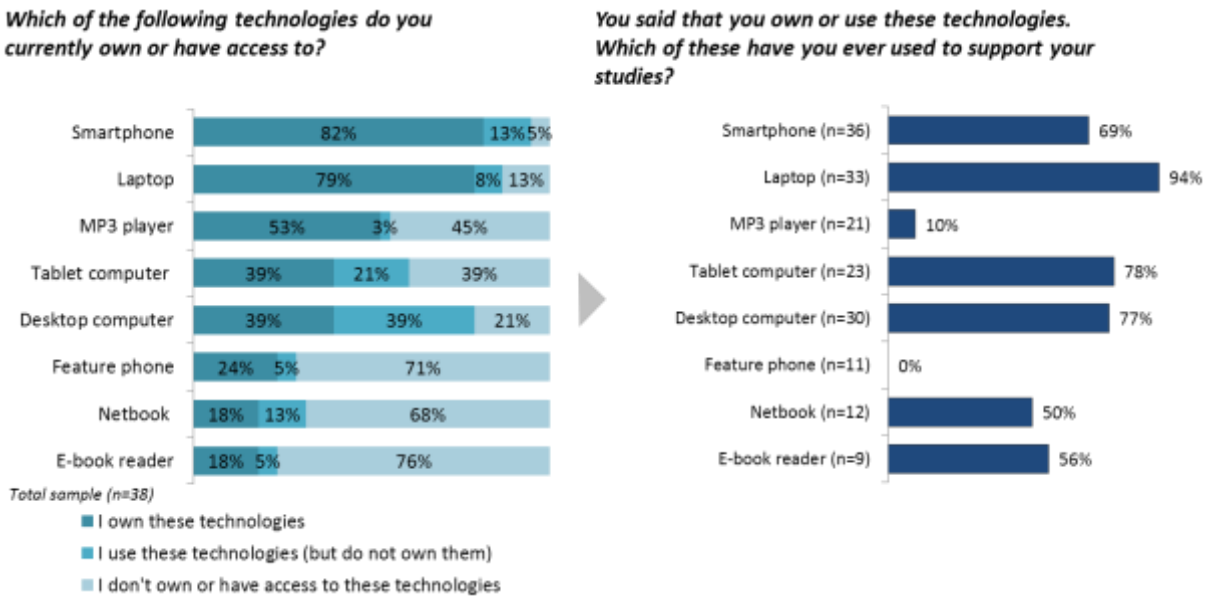
majority of students were employed in addition to studying (29, 76%) and worked a minimum of 4 hours and a maximum of 70 hours a week (M=32, SD=17.17). In addition to hours spent working, participants spent a minimum of 4 hours and a maximum of 50 hours per week studying (M=24, SD=13.21).

Findings

Participants were provided with a list of technologies and asked to describe their access to various technology types. Three response categories were available: "I own these technologies", "I use these technologies (but do not own them)" and "I don't own or have access to these technologies". Ownership of Smartphones surpassed ownership of laptop computers with 82% of students owning these devices and a further 13% using them. Laptop computers were owned by 79% of students and 53% owned a MP3 player. Ownership of tablet devices was on par (39%) with ownership of desktop computers. A further 29% used a desktop computer compared to 21% who used a tablet device. Feature phones were only owned by 24% of participants. Netbooks and eBook readers were owned by fewer participants (18%), although an additional 13% had access to a netbook and 5% had access to an eBook reader. Further analysis indicated that all students owned or used two or more technologies and 76% of the sample owned or used four or more technologies (M=4.61, SD =1.28). Of the 36 students who owned or used a smartphone, 64% also owned or used a tablet computer (n=23).

We were particularly interested in understanding whether students who owned or used mobile technologies were using them to support their learning activities. Participants who indicated that they owned or had use of these technologies were asked if they used these technologies to support their studies. As expected, the majority used their laptop computers to support their studies (94%) and 77% used their desktop computers for study activities. A large proportion of participants who owned or had access to tablet computers (77%) and smartphones (69%) used these devices for study purposes. EBook readers (56%) and netbook computers (50%) were also widely used by participants who owned or had access to them. Very few participants used MP3 players to support their studies (10%). These findings are depicted in Figure 1.

Figure 1: Access and use of mobile technologies to support studies



Students were asked to indicate from a list of 15 learning activities which they engaged in with their technologies. The learning activities engaged in by students who use their tablet computers, smartphones laptop and desktop computers for study purposes are presented in Figure 2. The results for the remaining mobile technologies were excluded from this analysis due to small sample sizes.

Except for sending and receiving course related emails, tablet computers and smartphones appear to be used for different purposes. The activities engaged in by students on their tablet computers include searching for course related information (82%), accessing or reading course materials (65%) and taking notes (65%) whereas students use smartphones to share information with other students (64%) and take photos or videos to support their learning (64%). Tablets are also used to participate in discussion forums by 53% of students compared to only 24% who use their smartphones for these activities. More than one in two students use their tablets to access the university learning management system from their tablet computers (59%) or smartphones (52%).

In the literature, mobile learning is often described as occurring when students are learning while physically moving between locations, for example while walking or in transit. To determine whether there is merit in this assumption, students were asked to indicate where they used their devices for learning. A surprisingly large proportion of students used their smartphones (68%) for learning while travelling as a passenger in a vehicle and 44% used these devices for learning while walking. Tablet computers were also used by a number of students for learning while travelling in a vehicle (44%).

Figure 2: Use of mobile technologies for learning activities

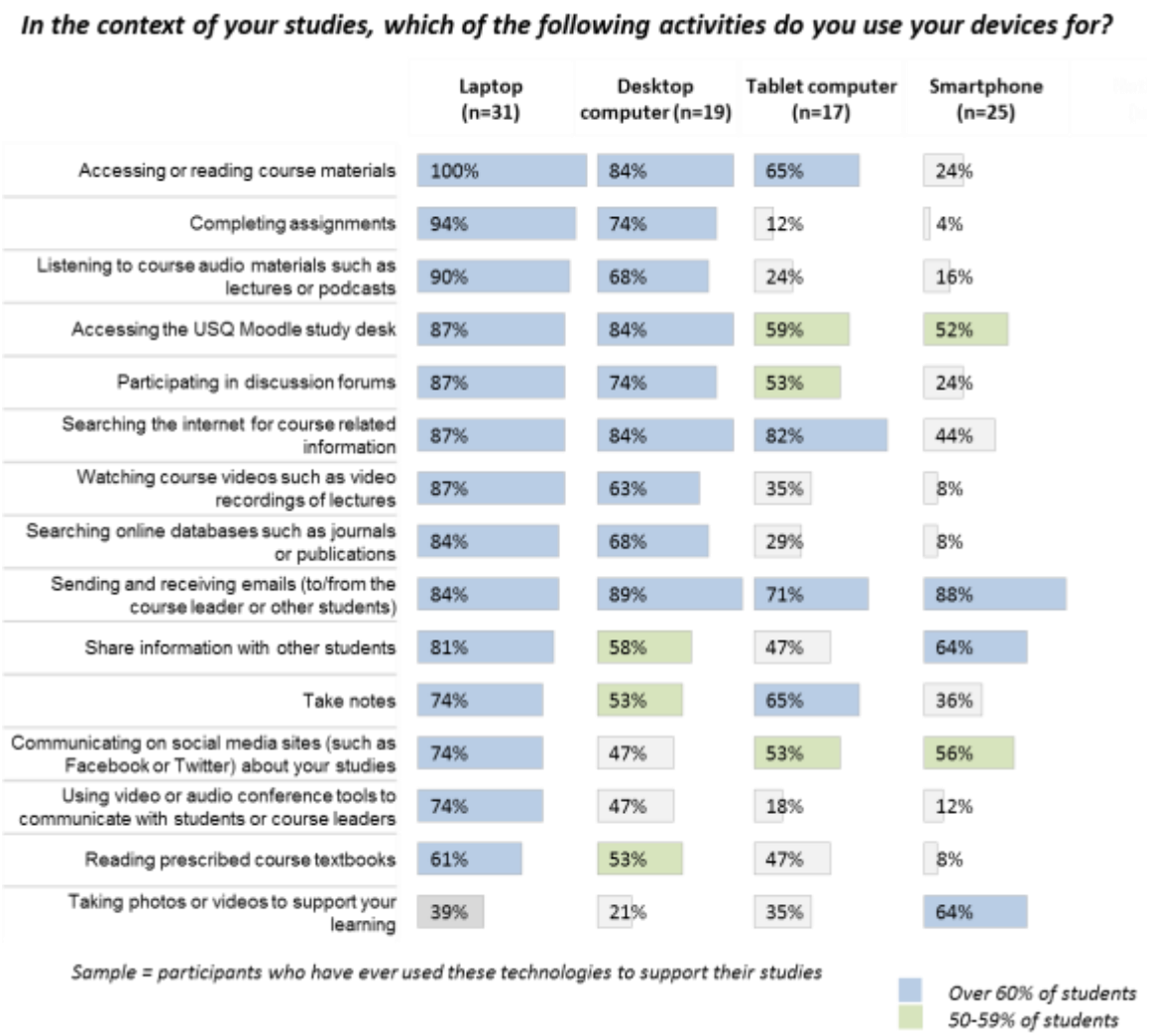
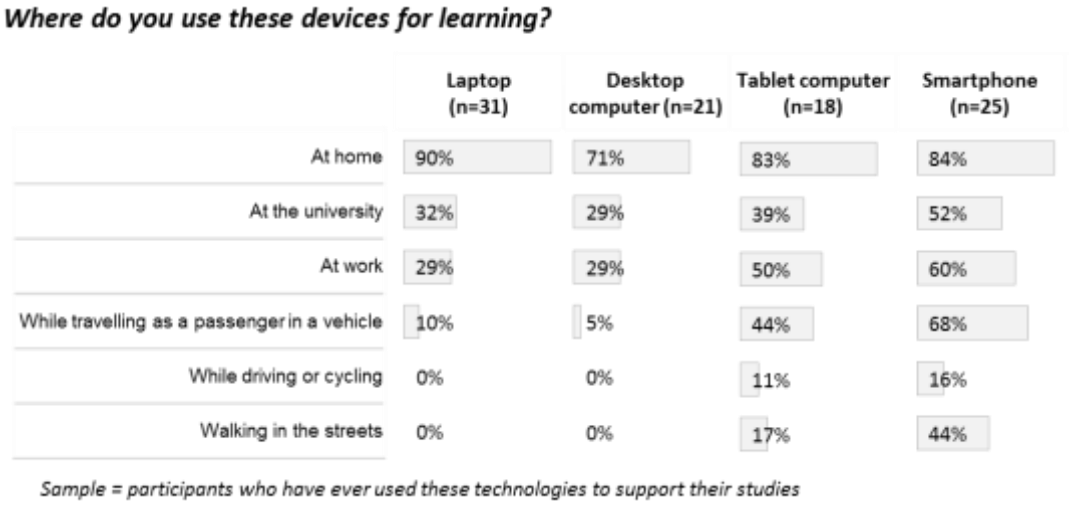


Figure 3: Location of use of mobile technologies for learning activities



Conclusion

The findings from this research study provide additional insight into the mobile technologies owned by students and their preferences for using these technologies to support learning activities. Results from the pilot stage of the survey suggest that a large proportion of students have access to advanced mobile technologies such as smartphones and tablet computers, with many having access to both of these devices. It also appears that students use smartphones and tablet computers to complement one other and that each is used for different purposes. Email appears to be used equally on established laptop and desktop computers as well as mobile smartphones and tablet computers. Tablet computers are used to engage with tasks such as reading, searching for course content and note taking whereas smartphones are preferred for taking creating video or audio content and sharing information quickly. This supports previous findings (Gosper et al., 2013) that students are strategic in the use of their technologies and do not simply use new technologies because they are available. The results also provided evidence for previous statements that students would like to engage in learning activities while on the move. This is contrary to conclusions reached by Sharples, Taylor and Vavoula (2005) who noted that very few learning actually occurs when students are physically moving between locations.

Although these results are preliminary and require further exploration with larger sample sizes, it appears that students consider mobile devices to be useful tools to support their learning. These findings suggest that Australian higher education institutions may benefit from leveraging student's access to mobile technologies by providing infrastructure to access to learning materials across devices. After refinement of the survey instrument additional data collection will be undertaken to determining if the same trends are evident with large sample sizes across multiple disciplines within the university.

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HOW TO CAPTURE THE PEDAGOGICAL BENEFITS OF FLEXIBLE AND COLLABORATIVE LEARNING SPACES FOR BLOCK INTENSIVE TEACHING AND LEARNING IN POSTGRADUATE COURSES IN HIGHER EDUCATION.

Dr Barrie Todhunter

Purpose

By the nature of their age, experience and other attributes, postgraduate students differ from undergraduate school leavers in the way they learn and the expectations that they have of teaching and learning environments. Didactic teaching environments in the style of Harvard lecture theatres have their place, but mature-aged students have changing expectations around the way they wish to learn, based on circumstances such as life experiences, personal insights, professional experience in the workplace, networking needs, and time limitations. The imminent construction of new teaching and learning facilities at a relatively new campus of a regional university provides an opportunity to discover what educators and students really need and expect, and to influence the final design of the teaching and learning spaces in terms of the costs incurred to provide high levels of flexibility and opportunities for collaborative learning activities. The purpose of this study is to develop a framework for the design of such spaces for postgraduate coursework students in a higher education setting.

Design/methodology/approach

The approach for this research study is through a case study at an urban campus of a regional university.

The methodology involves collection and analysis of qualitative data from analysis of documents and other artefacts, from semi-structured interviews with key stakeholders. The preliminary findings will help to formulate the subsequent stage of the project which will involve collection of pseudo-quantitative data from a large-scale online survey. The final stage will comprise the use of nominal focus groups to examine the outcomes of the survey, and to use the findings from the focus groups for the development of a framework for optimal allocation of funds for the design and construction of the teaching and learning spaces.

Research question

What is the real pedagogical value of flexibility and collaboration in teaching and learning spaces for postgraduate coursework students in a block intensive face-to-face learning environment?

Proposed findings

The study will establish the optimal use of funds in the provision of flexibility and opportunities for collaborative learning in teaching and learning spaces for postgraduate courses in a higher education setting.

Originality/value

There is extensive literature on the key dimensions of this research problem – design of flexible teaching and learning spaces, and learning in a collaborative environment – but this study will help to optimise the allocation of funds for the increased provision of flexibility and collaborative learning spaces in a postgraduate coursework environment in a higher education setting.

HOW TO USE DIGITAL GROUP ASSESSMENT (DGA) TO ADDRESS ISSUES OF AUTHENTICITY AND INTEGRITY IN POSTGRADUATE COURSEWORK PROGRAMS BY DISTANCE EDUCATION

Dr Barrie Todhunter

Purpose

The requirement for threshold learning outcomes (TLOs) to demonstrate achievement of the intended learning outcomes for postgraduate coursework programs in higher education has renewed the focus on the authenticity and integrity of assessment activities. TLOs for management-related disciplines focus on generic attributes and skills such as judgement, innovation, problem-solving, decision-making in an ethical framework, knowledge integration, self-management, communication skills, leadership and team work. To demonstrate the achievement of such learning outcomes in a classroom environment is difficult enough, but the challenges are magnified when considered in light of the constraints of a distance learning environment. The intended outcome of this study is to identify the issues associated with this dilemma, and to devise a framework to assist the development of meaningful assessment activities in a digital learning environment.

Design/methodology/approach

This preliminary stage of a larger research project will comprise; a detailed literature review in relation to authentic assessment in higher education, threshold learning outcomes for postgraduate coursework programs, and the barriers (if any) imposed by teaching and learning in a global digital environment; semi-structured interviews with a range of key stakeholders; critical examination of existing assessment practices in a management-related postgraduate program offered internationally through distance education; and definition of the terms of inquiry for a further study to devise a framework to assist the development of meaningful assessment activities in a digital learning environment.

Research question

What is an appropriate framework for the development of meaningful assessment activities in a digital learning environment?

Proposed findings

The intended outcome of this study is to identify the key issues associated with this dilemma, and to devise a framework to assist the development of meaningful assessment activities in a digital learning environment.

Originality/value

There is extensive literature on the key dimensions of this problem – assessment, authenticity, digital environment, threshold learning outcomes – but there is little in the way of guidelines for meaningful assessment activities in a digital learning environment to achieve defined threshold learning outcomes. This study will add value to this area of research.

WHAT IMPACT DOES AN HOLISTIC ASSESSMENT OF SUSTAINABILITY HAVE ON THE UNIVERSITY CAMPUS OF TOMORROW?

Dr Barrie Todhunter, Dr Eric Too

Purpose

As the gloss of sustainability wears thin as a result of over-exposure, this study looks at the full impact of the concept of sustainability on the design, structure and functionality of the physical university campus of the future in a case study setting. Rather than a retrospective view of how we can tinker at the edges of the built environment of university campuses, this research project will take a grass-roots view of the interface between higher education and the physical infrastructure that is required – or not required – for a contemporary regional university that is primarily engaged in providing off-campus education.

Architects and other consultants in the built environment domain have quietly practised sustainability for thousands of years, selecting locations, orientation, structural methods, cladding, services and the general means of enclosing space, through an implicit framework for optimisation of finite physical resources. In a digital era, the principles of optimisation now drive us further back in the supply chain of the built environment such that we must now question the very need for a physical presence in the form of a centralised campus, and how digital connectivity can reframe the spaces we need for a teaching and learning environment. The elimination of the need to construct unnecessary physical space can have far greater impact on the extent to which we can improve the sustainability of our university community than fretting over sunshades and energy-efficient light bulbs.

Design/methodology/approach

The approach for this research project is a case study within a satellite urban campus of a regional university. The unit of study will primarily focus on a new teaching and learning building to be constructed on the campus.

The methodology predominantly involves collection and analysis of qualitative data from interviews and focus groups, and analysis of data from an online survey.

The preliminary stage comprises a literature review, analysis of documents and other artefacts, as well as semi-structured interviews with key stakeholders in the case study context to identify the key themes and issues to be investigated further.

The subsequent stage will involve a large-scale online survey to collect pseudo-quantitative date from a wide range of stakeholders connected to the case study location. Analysis of this data will provide a preliminary framework for policy decision-making on the need for the development of physical infrastructure for the respective uses and activities related to the provision of higher education, on-campus and off-campus, particularly for the regional university where the case study resides.

This preliminary framework will be tested using nominal focus groups to refine the framework.

Research question

What impact does an holistic assessment of sustainability have on the university campus of tomorrow?

Proposed findings

The intended outcome of the research project is a framework for optimisation of the allocation of funds for future development of a campus for a regional university focused on the delivery of off-campus education in an increasingly digital environment.

Originality/value

There is extensive literature on the concepts of sustainability in regard to the development of physical infrastructure for the built environment. There is limited literature on how this applies to the future development of university campuses, especially for regional universities engaged primarily in off-campus education. This study will focus on the issues relating to the future development of a physical university campus for a regional university which is the subject of the case study under investigation. Aspects of the framework would have application to other universities in similar situations in an increasingly restrictive financial environment.

DO INTENSIVE WORKSHOPS PROVIDE ADDITIONAL VALUE TO POSTGRADUATE COURSEWORK STUDENTS COMPARED WITH EXTERNAL/ONLINE STUDIES – SHOULD WE ABANDON ON-CAMPUS TEACHING FOR POSTGRADUATE STUDENTS?

Dr Barrie Todhunter

Purpose

How should we actually 'deliver' education? What does that really mean? Dual-mode universities are currently going through the self-reflective process of deciding how they present themselves to the world, including the question of rebranding in a digital environment. Universities must decide how they compete in an ever-changing higher education environment, and how they actually deliver higher education to their poorly understood demographic of off-campus students. The predominant jargon for off-campus delivery at present is 'online' but what does that mean to contemporary higher education? All education at all universities is online to some extent, and has been for many years. Being 'online' is no longer a differentiator for a university as it was a decade ago. Online-branded universities could become a relic in any race to be seen as a contemporary deliverer of education to non-traditional students. Should all face-to-face teaching be discontinued at such universities in favour of 'online' education?

Or alternatively, should such universities focus on becoming an Open University to provide them with a true point of differentiation? How 'open' is open? What is the most appropriate mode of delivery of higher education for postgraduate coursework students in the future? As the developer of the block intensive workshop mode for postgraduate programs at the USQ Springfield campus, the author has a particular interest in the learning outcomes of postgraduate coursework students whose profiles are poorly understood and rarely catered for in terms of learning support? The value of the existing postgraduate block intensive workshops at the Springfield campus (which are unique within the case study university) will be examined in terms of costs and benefits for all stakeholders. This will be of significance to the university overall and of assistance in the design and utilisation of the new teaching and learning building at the satellite campus.

Design/methodology/approach

The approach adopted for this research project is a case study within an urban campus of a regional university that is primarily focused on provision of off-campus education.

This preliminary stage of a larger research project will comprise a detailed literature review in relation to the use of intensive workshops and other forms of block teaching modes in postgraduate higher education, threshold learning outcomes for postgraduate coursework programs, as well as collection and analysis of qualitative data from semi-structured interviews with key stakeholders involved in the provision of postgraduate coursework teaching and learning, including both staff, students and employers.

Subsequently, the findings from the preliminary stage will inform a large scale online survey of key stakeholders to help define the preliminary framework for the use of, and value of, intensive workshops and block intensive modes for postgraduate coursework teaching and learning within the case study university.

The preliminary framework will be tested and refined using nominal focus groups.

Research question

Do intensive workshops provide additional value to postgraduate coursework students compared with external/online studies – should we abandon on-campus teaching for postgraduate students?

Proposed findings

The intended outcome of this study is to identify the key issues associated with the use of, and value of, intensive workshops in the case study setting, and the development of a meaningful framework for ongoing development of the program.

Originality/value

There is extensive literature on the key dimensions of this problem – learning spaces, collaboration, networking, authentic learning and threshold learning outcomes – but there is little in the way of guidelines for the adoption of intensive workshops and other block intensive workshop teaching and learning environments in an increasingly digital learning environment.

This study will add value to this area of research especially for the design of new teaching and learning spaces within the proposed new teaching and learning building.

RETHINKING PROFESSIONAL DEVELOPMENT: HOW UNIVERSITY TEACHERS LEARN IN A LEARNING MOBILITY ECOSYSTEM

Maxine Mitchell

Introduction

The purpose of the research is to contribute to the body of knowledge on the changing nature of the higher education teacher's learning ecology in a digital age.

The pervasive and persuasive character of emerging technologies and learning mobility in a networked, social, mobile age has resulted in a view of knowledge and information as being seamless, described by Sharples et al (2012) as occurring when a person experiences a continuity of learning across a combination of locations, time, technologies or social settings.

Technology enhanced learning has moved into the mainstream of higher education. At the institutional level is it recognised as a strategic asset (Garrison, 2011). At the level of academic work, there is an expectation that educators utilise the capacity of digital technologies to design flexible learning experiences to support diverse groups of learners as they learn how to learn (Oliver, Harper, Wills, Agostinho, & Hedberg, 2008; Phillips, McNaught, & Kennedy, 2011). The limiting factor remains the availability of skilled educational practitioners (Beetham, 2008).

The significance of this study is in its investigation of the phenomena of higher education practitioners teaching in an 'always-on' digital learning environment. Fundamentally the researcher will ask ***how*** educators experience learning mobility and the ***role*** professional development plays now and in the future to support teachers in their scholarly practice.

Literature Review

For the purposes of this research the higher education learning mobility ecosystem consists of three intersecting, transforming, digitally mediated domains of knowledge: theories of learning in a digital age; design for learning in a digital age; and professional development in higher education.

There is a wide range of factors that challenge the imaginative use of digital technologies to transform teaching and learning in the 21st Century (Beetham, 2008; Laurillard, 2008) where "transformation is more about the human and organisational aspects of teaching and learning than it is about the use of technology" (Laurillard, 2008, p. xvi). There is little doubt institutions of higher education are being transformed as a result of technology mediated innovations (Ernst & Young, 2012; Garrison, 2011) leading to the topical debate in social media of an 'educational revolution' (Barber, Donnelly, & Rizvi, 2013; Cadwalladr, 2012; Dodd, 2013b; John Traxler "Global impact mobile devices," 2012; Gregory, 2012; Hare, 2012). In researching the 'human' dimension this study will hold true to Cranton's (1996) central tenet that *educators are learners* where the fluid nature and role of scholarly practice is rapidly changing in the 'post-industrial knowledge economy' (Facer, 2011).

Theories of learning in a digital age

There is nothing new about technologies for learning. Beetham and Sharpe (2008) contend that mobile learning, like previous innovations, can be integrated to pedagogical practice without altering the fundamental truths about how people learn. Distinction needs to be given on society beginning to witness a new model of education rather than a new model of learning (Mayes & Freitas, 2008). This paper will situate discussions about emerging technologies for learning within established educational discourse and contemporary theories of learning. However new technologies "represent a paradigm shift with specific and multiple impacts on

the nature of knowledge in society, and therefore the nature of learning" (Beetham & Sharpe, 2008, p. 4).

In the context of mobile learning, Kearney, Schuck, Burden and Aubusson (2012) acknowledged that as a relatively new phenomenon, the theoretical basis of mobile learning is currently under development. Traxler (2012) is clear in his interpretation of the emergence of mobile learning stating that "after 12 years of trials, tests and pilots, what we really need now is some big scale evidence that proves…that good mLearning works…[there] needs to become sustainable mLearning ecosystems that clearly deliver mainstream benefits"

In recognition of the ill-defined nature of mobile learning, the researcher will follow Mayes and de Freita's (2008) lead and think of learning theories not as competing, but as a set of quite compatible explanations for a large range of different phenomena. Therefore this study will draw on the pedagogical thought of constructivism, particularly social constructivism (Vygotsky 1986), transformative learning (Mezirow 1991), activity theory (Engestrom et al. 1999) and theories of experiential learning (Kolb 1984), situated learning (Lave and Wenger 1991) and reflective practice (Schon 1991; Brookfield 1995).

The underlying goal is to extract the strong link between theory and practice, where the pedagogical principles translate into transforming perspectives and actions in the ways educators learn about mobile learning and integrate into their scholarly practice. The researcher intents to use a pragmatic approach and rational discourse to investigate the mindset of educators to challenge ways of knowing and doing (epistemology) and ways of being (ontology) in a learning mobility ecosystem.

Design for learning

Although there are substantially different theories about how people learn, the significant tenet spanning across contemporary learning theories is the activity on the part of the learner (Beetham, 2008). Design for learning, like pedagogy, bridges theory and practice. It balances a systematic approach with rules based on evidence, and a set of contextualised practices that are constantly adapting to learning circumstances. Design has therefore become a paradigmatic discipline for the digital age, characterised as intentional and systematic, yet creative and responsive (Beetham & Sharpe, 2008). Given the contingent nature of design for learning in the digital age, the most pedagogically meaningful focus becomes the learning activity (Beetham, 2008).

As learning contexts rich in electronic and mobile technologies become mainstream educational practice (Beetham & Sharpe, 2008), Sharpe and Oliver (2008) ask the question of how digital technology should be used and how to integrate emerging technologies into learning design effecting a transformative impact on learning activities.

Julian Dodd, a self-proclaimed agile worker in the social age and prolific curator in the digital space, states:

It's easy to get out of touch with technology, but we rarely get out of touch with storytelling: it's at the heart of how we communicate, how we build relationships, how we share and how we learn (Dodd, 2013a).

The essence of Dodd's blog post is that technology is important but it is transient; it is how technology adds value to the learning enterprise that is of significance. Dialogue with others becomes crucial in changing mindsets about how we conceive and design for learning (Reushle, 2008). Dodd (2013c) refers to mobile learning as "provoking a new mindset for learning design."

Professional development in higher education

Despite increasing research and scholarship in the area of professional development, it remains an under-theorised field of endeavour (Boud & Brew, 2012). The ability of institutional lead professional development to have an impact on scholarly practice is further challenged by the view held by number of researchers (eg. Bates,2000; Boud, 1999; Collis & Moonen, 2001; Laurillard, 2002) who have concluded that many academics are resistant to professional development initiatives (Steel, 2004). The landscape becomes increasingly dynamic when engagement with digital technology for learning takes place across a range of institutional and personal contexts (White, Connaway, Lanclos, Le Cornu, & Hood, 2012).

When taking into account strong interest among teachers in the use of technology as an integral and mainstream component of course delivery, Littlejohn (2004, as cited in Oliver et al., 2008) announced that teachers are still looking for theoretical and practical guidance in the design of effective technology enhanced teaching strategies and learning activities.

While the higher education system continues to be challenged by the complexities of academic work (Boud & Brew, 2012), it is evident that there needs to be a rethinking of professional development. What appears to still be missing for educators in a learning mobility ecosystem is appropriate guidance and support on effective pedagogical practice for engaging and transforming learning activities (Oliver et al., 2008).

Gaps in the literature

Based on the literature review, the researcher has identified the following key gaps in the discourse from seminal authors in the field of electronic and digital technology research, practice and evaluation in higher education:

- What is an effective learning experience [*professional development*] for learners and their teachers in a digital age? (Phillips et al, 2012)
- How to effectively integrate emerging technologies into teaching? (Sharpe & Oliver, 2008)
- How good mobile learning works? (Traxler, 2012)

Research Design

Paradigm of inquiry

The research will be situated in a constructivist pedagogical paradigm of "how people learn". Dialogue with other is crucial (Beetham, 2008; Reushle, 2008). Vygotsky (1986, as cited in Beetham, 2008) argued that learning is a socially mediated activity in the first instance, with concepts and skills being internalised only after they have been mastered in a collaborative context. Socio-cultural constructivism (derived from Vygotsky's approach) emphasises learning-by-doing and authentic learning activities (Mayes & Freitas, 2008). The constructivist paradigm resonates with the researcher's beliefs about the nature of knowledge, being and reality and the relationships between them.

The study will investigate the mindsets of adult learners (educators) following the tenets of transformative learning (Mezirow 1991) and activity theory (Engestrom et al 1999). Both learning theories have their foundations in Vygotsky's constructivism (Kehrwald, 2007; Reushle, 2008). Transformative learning described as a pedagogical approach that empowers the learner to reflectively transform their meaning schemes in terms of beliefs, attitudes, opinions, and emotional reactions (Reushle, 2008). Activity theory, also grounded in the

situativity perspective, is a framework for understanding social activity, where social activity is an essential constituent of learning activity (Kehrwald, 2007).

Methodology

Due to the ill-defined nature of the learning mobility ecosystem the research will use an eclectic methodological approach (Phillips et al., 2011) consisting of design-based research and phenomenography.

Design-based research (DBR)

Design-based research is characterised as an approach to produce new theories, artefacts and practices that account for, and potentially impact, learning and teaching in natural learning settings (Barab & Squires, 2004, as cited in Bienkowski, 2012). The design processes builds on a family of methods that are interventionist, iterative, process-driven, utility-oriented and theory-oriented (van den Akker et al, 2006, as cited in Bienkowski, 2012).

Phenomenography

The essence of phenomenography is the focus "on *variation* [sic] in ways of experiencing things" (Martin & Booth, 1979:110). This methodological approach is fit-for-purpose as how people learn in a digital age does not always move in a linear fashion from theory to principle to practice (Beetham, 2008). Phenomenographers emphasize that their sense of learning is based upon the learner's perspective (Giorgi, 1999).

The next stage is to develop a flowchart detailing each phase in the research design. The flowchart will act as a blueprint guiding the researcher, ensuring a systemic, evaluative approach. The blueprint will be an opportunity to surface and address matters of academic rigour in the research design.

Method

The DBR processes build on a family of methods that are interventionist, iterative, process-driven, utility-oriented and theory-oriented (Bienkowski, 2012). Phenomenographic processes compliment DBR in that it is situated, intimate and structured in the 'object of learning' and the 'act of learning' (Giorgi, 1999).

Data collection techniques:

- Conduct interactive interviews: meta-awareness (Marton & Booth, 1997); repertory grid technique (Kelly, 1955)
- Collect artefacts: reflective journals, personal biographies, field notes, images, concepts, metaphors, stories
- Design collaborative partnerships: communities and networks of learning

The research subjects will be higher education academics.

Research Questions

1. How do educators experience learning mobility?
2. What role does professional development play now and in the future to support educators in their scholarly practice?
3. What is the role and scholarly practice of educators now and in the future in the higher education system?

Proposed findings and originality

Mindsets of the age

As the study will follow a constructivist pedagogical paradigm underpinned by the principles of transformative learning and activity theory, Foucault's concept of 'mindsets of the age' (Kinash, n.d.) will be employed as an approach to contextualise the research subjects ways of doing and ways of being. Mindsets emerge through the conversations and actions of people, are specific to a time and place context, are social rather than individual, simultaneously emerge out of daily being with others, and determine how we interact with others.

The in-progress literature review and early-phase reconnaissance data collection indicates the followed themed mindsets:

- Fixed and growth : motivation; identity; utility; value (Dweck, 2006)
- Knowledge revolution: industrial age; information age; knowledge age; digital age (Dodd, 2013; Jarche, 2013)
- intergenerational change: digital visitors & residents (White et al, 2012)
- Traditional and digital scholarship
- Transformative paradigm shift: theory-in-use; espoused theory

Conclusion

The higher education landscape is becoming highly complex. The research will position the learning mobility ecosystem as a 'wicked problem' in recognition "that mobile, personal and wireless devices are now radically transforming societal notions of discourse and knowledge…as well as learning" (Traxler, 2007).

The researcher will challenge the higher education conventions of the nature of knowing and the nature of being through the lens of the learning mobility ecosystem from the perspective of teacher as learner in an 'always-on' learning environment.

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IMPACT OF ICT USAGE IN TEACHING AND LEARNING: EVIDENCE FROM AUSTRALIAN UNIVERSITIES

Md Shamsul Arifeen Khan Mamun

Purpose and significance

The main perceived benefits of ICT in teaching and learning at the university are distance learning, which is based on high flexibility, and low cost for education (OECD 2005). However, despite flexibility, high withdrawal is reported high for distance learners in Australia. The estimated figure is 34% compared to 12 % for on-campus studenta (Mcintosh and Morrison 1974 cited in Palmer & Bray 2002). Though gross enrolment rate was 80 % in 2010 (World Bank 2010), the share of Australian young with tertiary level first degree (i.e. bachelor degree) was 37 %, which was lower than OECD country average of 40% in the year 2010 (OECD 2012). Student's drop out is a crucial issue for the efficiency of university (Belloc, Maruotti and Petrella 2010). Furthermore, though distance education is considered as a low cost education compared to conventional education (Daniel 1996), the critical view is that distance education provides inferior quality education to the disadvantages who cannot afford on-campus learning (Klees 1995). There are literature in this area (Palmer & Bray 2002; Coates, D. 2004; Yousef & Dahmani 2008) but the results are inconclusive. If the distance learner has low quality education, the educational outcome is not considered cost-effective in true senses. It goes against the perceived benefits of ICT in education. Hence the significance of the study is realized.

Gaps in the literature

Past researchers used the definition of the ICT narrowly. For example, the researchers defined ICT considering a single element of ICT either computer or internet (Anderssen 2006, Gutierrez & Gamboa 2010; van Dijk 2006). Measurement of 'access to ICT' was the number of persons and/ or categories of persons have a computer and/ or have a network connection. It has been already argued that access to ICT does not necessarily mean the use of ICT. It is important to understand the usage of ICT as a completed technology; because as a whole (educational) technology affects education cost and student learning achievement (Paul 2002). Definition of ICT is very broad. UNESCO (2003) defines ICT as a complete technology that has three different parts: Information technology (IT), Communication Technology (CT) and finally information literacy. IT part has elements like hardware, software, manpower skills, system integration, operational support, and infrastructure, CT part is concerned with the internet, World Wide Web. And information literacy is the combination of knowledge, understanding, skills and attitudes. The research project uses the holistic definition of ICT.

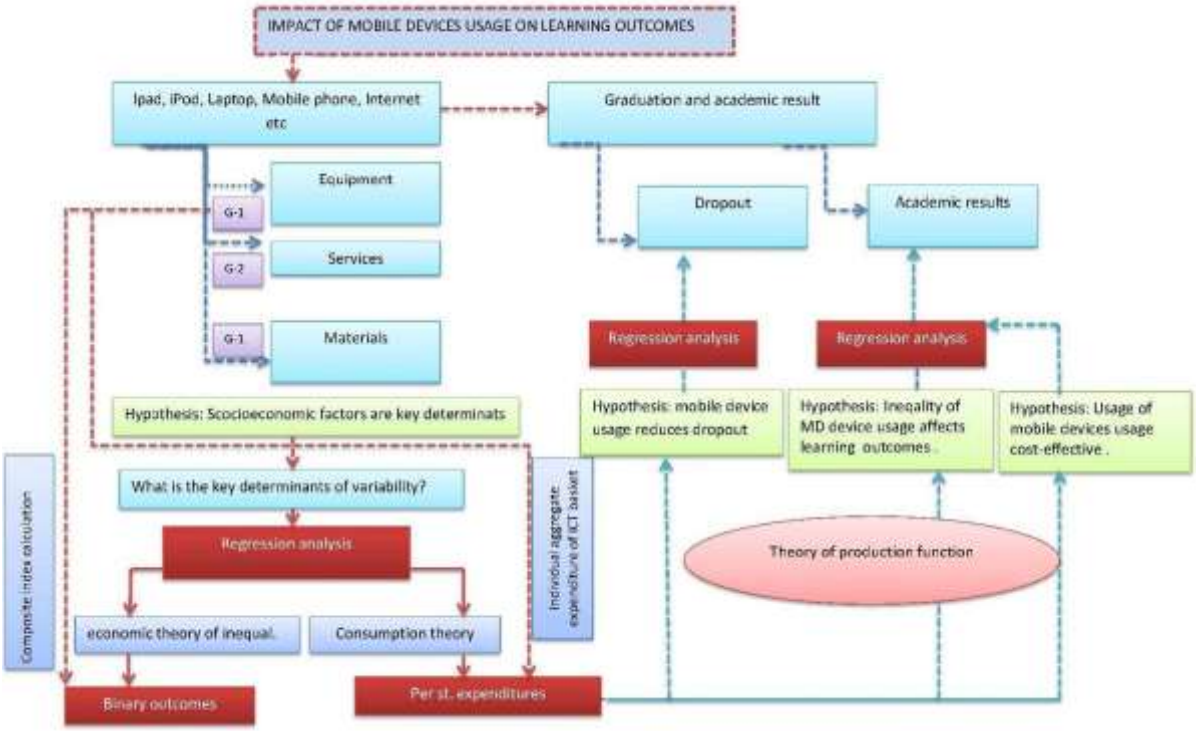
Secondly, past studies that empirically investigated university student dropout and its determinants (for example Belloc, Maruotti & Petrella 2011; Bound & Turner 2011; López-Pérez, Pérez-López and Rodríguez-Ariza 2011) had taken into account socioeconomic variables and student ability variable as explanatory variables. However, their empirical model failed to conceptualised production function relationship between individual and institutional resources, and individual outcome (Belfield & Fieldin 2001); as a result variable representing university characteristics remained absent. Our conceptual model is based on the production function relationship of economics. The proposed conceptual framework is proposed in Figure 6 in order overcome the conceptual deficiency observed in regard to the past studies. It includes ICT as an investment (input) in the whole production system alongside socioeconomic variables. Moreover, our scope of study will be wider encompassing more than one university. Though, all universities possess abundant ICT components (such as computers, software, leaning materials and technological infrastructure) there is considerable variability in the adoption of ICT and its usage, and purposes for which ICT is being used (Kirkup & Kirkwood 2005). Such

variations will address the concept of 'digital divide', primarily which refer to socioeconomic, and demographic differences pertaining to access and use of ICT (Gutiérrez & Gamboa 2010; NTIA 1995, Natriello 2002, Servo 2002 Cited in Tien & Fu 2008). In our study data will be disaggregated at the individual student by their intensity of use of mobile device and socio-economic status; as a result more authentic results will be generated about the contribution of ICT usage to student dropout in the universities. In the Australian universities, evidences of digital native and digital immigrants and its impacts on students learning outcomes is unknown to date.

Design/methodology/approach

Research questions are divided into two fundamental types of questions: descriptive and explanatory. Hence our research consists of both descriptive and explanatory research. Furthermore, since there is no base line study, hence the impact study will be out-of-control research. Finally it will be a quantitative research.

Descriptive research design include applying statistics like ratio, means, median, and percentage. Table, graph, or figure will be used while it is required to present data.
Explanatory research design is stated in the following Figure



Research Question

1) What types of mobile devices and services are being used and how intensively are used by the university students? 2) What is the level of inequality at the individual level of study? -How are students distributed at the institutional level of study? -How much is spent for mobile devices and service? 3) What are the key determinants of mobile device usage in the

universities? (Or why there is inequality of usage?) 4) What are the salient features of students who dropout at different universities at different levels of studies? 5) How does the usage of mobile devices bring about changes in student dropout rate? 6) Are there any differences between distance learners and face-to-face learners in terms of their learning outcomes? If yes, why do the differences exist? 7) Does usage of mobile device in education cost-effective?

Originality/value

- Using the holistic concept of ICT
- Using an econometric model based both economic theory of inequality[1], theory of consumption, and theory of the production function.
- Doing the analysis in the context of Australian university students and
- Exploring the cost effectiveness of mobile device usage to achieve educational outcomes (i.e. Grade in the exam).

Practical implications, and Social implications but if not relevant at this point may be omitted

The most significant output of the research will be understanding the sustainability of adapting mobile device in delivering higher education services to the communities in Australia.

Conclusion

There are myths regarding the application of ICT in delivering education service to the people. The research project is an initiate to dispel the myths and to unveil the reality from an economist point of view. Cross-sectional (quantitative) data will be collected at the end of the year 2013. Descriptive and explanatory research will be carried out. Descriptive research relies on mean, median, ratio. The table and graph will be used to present findings. To execute explanatory research microeconomic theory will be applied

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[1] [1] Economic inequality is the differences between the rich and the poor regarding possession of economic assets or income. Theoretically, differences in human capital investment by parents in their children play a major role in income inequality. High income families are better than poor income families to invest in human capital, as a result income disparities passed on across generation. For detail please refer to Durlanf, Stevene N. (1996) 'A theory of persistent income inequality' *Journal of Economic Growth,* 1: pp. 75-93

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LEADERS ENGAGING WORKERS: ENABLING LEADERSHIP PREDICTS MORE AUTONOMOUS MOTIVATION OF WORKERS THROUGH BASIC NEEDS SATISFACTION, AND MORALE AND JOB SATISFACTION

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ABSTRACT
This Australian study was conducted using two complementary approaches: self-determination theory and engaging-transformational leadership theory. An initial exploratory factor analysis was undertaken on data from a cross-section of adult full-time Australian workers (N = 247) to establish the viability of the key constructs including five dimensions of transformational leadership, three aspects of basic need satisfaction and three types of motivation. The current study established that enabling leadership (a component of transformational leadership) positively predicted more autonomous motivation in the workplace. However, the relationship was completely mediated by basic psychological needs satisfaction, and morale and job satisfaction. Neither enabling leadership nor morale and job satisfaction predicted the more controlled types of motivation (introjected regulation and external regulation) confirming that these forms of motivation are influenced by different antecedents than the autonomous type of motivation.

Leaders engaging workers: Enabling leadership predicts more autonomous motivation of workers through basic needs satisfaction, and morale and job satisfaction

Increasing rates of change in the modern global workplace has challenged organisational researchers and industry leaders to identify factors that contribute to performance, innovation, and satisfaction at work (Gagne & Deci, 2005; Kotter, 1996). Optimal functioning is determined not only by the strength of the motivational forces but also by the type of motivation. Self-determination theory (SDT) recognises that an individual can be simultaneously affected by different degrees of intrinsic and extrinsic motivation. Furthermore, SDT recognises that extrinsic motivation can be comprised of both autonomous and controlled forms (Gagne & Deci). Gegenfurtner, Festner, Gallenberger, Lehtinen, and Gruber (2009) viewed the distinction between autonomous and controlled motivation as more important than between intrinsic and extrinsic motivations because extrinsic motivation is encompassed by both autonomous and controlled motivation, and thus more useful in studying the multidimensional interaction of motivation from a theoretical and practical perspective. Furthermore, autonomous forms of motivation have been shown to be a more stable predictor of high performance and well-being over time (Gegenfurtner et al.). The self-determination continuum of motivation is shown in Figure 1.

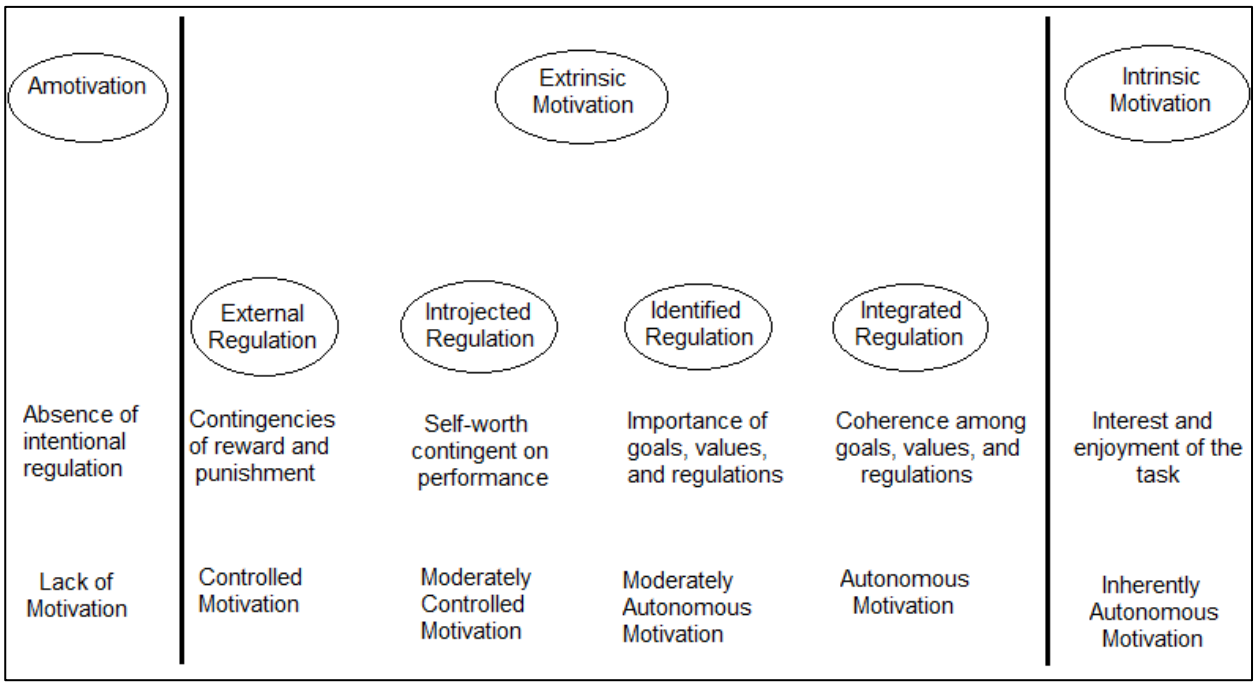

Figure 1.The self-determination continuum of motivation, showing the nature of the regulation for each type of motivation and its placement along the continuum, indexing the degree to which each represents controlled and autonomous motivation (Gagne & Deci, 2005).

Gagne et al.(2010) found a stronger association between need satisfaction and both identified regulation and intrinsic motivation (autonomous motivation) than with external and introjected regulation. Thus, it appears that the satisfaction of basic psychological needs may be an important factor in the development of autonomous motivation but may be unrelated to the development of controlled motivation.

It is likely that need satisfaction can predict the type of motivation, it is also possible that autonomous regulation and need satisfaction mutually reinforce each other, thus individuals who are autonomously regulated will benefit from an upward spiral of need satisfaction and adaptive motivational regulation over time (Van den Broeck, Vansteenkiste, & De Witte, 2008). Extrinsic regulation might provide some satisfaction, but this satisfaction is likely to be derivative and short lived because extrinsic goal pursuits do not directly satisfy individuals' basic psychological needs (Van den Broeck et al.). The re-emergence of research on needs satisfaction coincided with recent leadership advances.

Transformation leadership (i.e., visionary leadership) that evolved in the late 1980-90s has been under investigation in recent times. American based researchers (e.g., Bono & Judge, 2003) continue to argue for the benefits of transformational leadership to better motivate and enable worker satisfaction and adaptation to change. However, U.K. researchers (e.g., Alimo-Metcalfe & Alban-Metcalfe, 2005) formed a different opinion. They reported traditional transformational leadership as needing to be applied differently in non-U.S. business cultures, and needing to change from heroic leadership by 'distant' charismatic CEOs to 'nearby' leadership involving hands-on line managers. Alban-Metcalfe and Alimo-Metcalfe (2007) further refined this autonomous-nearby transformational transitional leadership concept into engaging leadership (see Figure 2).

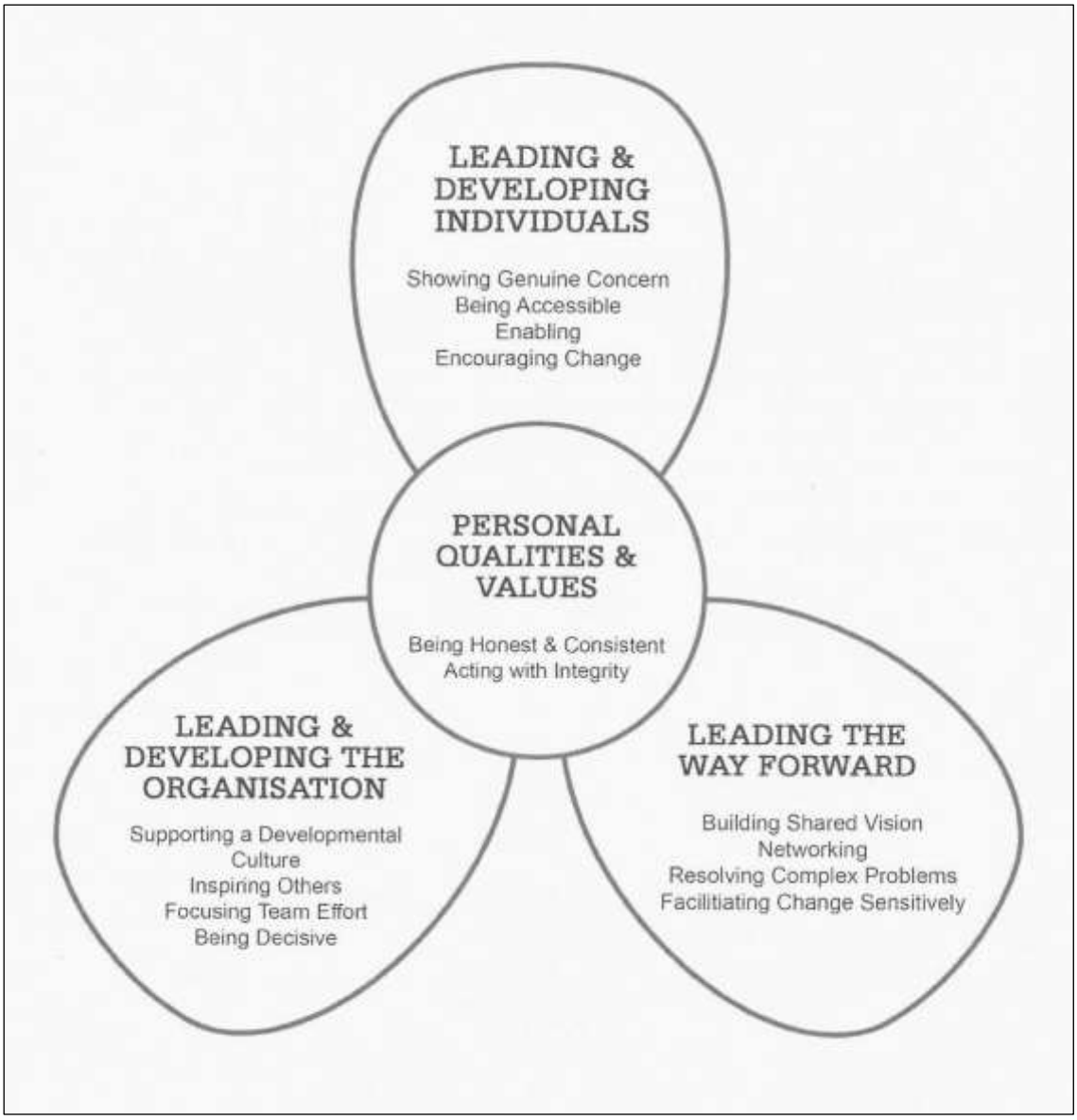

Figure 2. The structure of the engaging transformational leadership showing enabling leadership is centred on the leader's personal qualities and core values that enable individual workers and the organisation to be engaged and move forward together. Due to the limitations of the TLQ (Research Version), only six of the above factors have been used in the current study (RWG, 2012).

These recent European themed advances in transformational leadership, motivation, and basic needs satisfaction have the potential to enable effective leadership to motivate workers cross culturally. It is important that multicultural Australia (at the cross-roads of U.S. and European business cultures) assesses the usefulness of this recent research to enable Australian workplace leaders to motivate workers to engage effectively in a global business environment that is increasingly dominated by an emergent Asia. With little further evidence found in the SDT or leadership literature, this study sought to investigate this gap in knowledge.

Current research suggests engaging leadership may predict subjective wellbeing (job satisfaction and morale), basic needs satisfaction, and autonomous motivation and apply differently in the Australian workplace. This study's investigation of these relationships is an

important and timely application of SDT as suggested by Van den Broeck, Vansteenkiste, De Witte, Soenes, and Lens, (2010).

Research focusing on the conditions that benefit and hinder human performance have both theoretical and practical relevance as it not only adds to the formal knowledge of human behaviour but also allows for the development of environmental designs that optimise peoples' development, performance and well-being (Ryan & Deci, 2000). Often a desired outcome of industrial/organisational research is to improve employee job satisfaction and morale with the hopes of increasing productivity and retention. Research has often supported the intuitive assumption that job satisfaction is predictive of job performance (Fisher, 2003; Fried, Shirom, Gilboa, & Cooper, 2008; Harrison, Newman, & Roth, 2006; Judge, Thoresen, Bono, & Patton, 2001; Riketta, 2008). Considerable research has also shown that low job satisfaction is related to a desire or willingness to leave a employing organisation, which is in turn predictive of actual turnover (Hom, Griffeth, & Sellaro, 1984).

Effective leadership is often hypothesised to influence performance outcomes either directly or indirectly through the development and maintenance of job satisfaction and motivation (Yun, Cox, Sims, & Salam, 2007). Motivation has often been linked to predicting effective performance, job satisfaction, and employee well-being (Gagne & Deci, 2005; Porter & Lawler, 1968; Vansteenkiste, Timmermans, Lens, Soenens, & Van den Broeck, 2008; Vroom, 1964). In this article we suggest that one of the pathways for effective leadership to develop and maintain employee job satisfaction and motivation is through the satisfaction of the basic psychological needs (autonomy, relatedness, & competence), as suggested in SDT (Ryan & Deci, 2000) and through enabling (as defined in engaging-transformational leadership; Alban-Metcalfe & Alimo-Metcalfe (2007).

Present Study

The present study uses two complementary approaches: self-determination theory and engaging-transformational leadership theory. This study sought to examine a structural model linking engaging-transformational leadership, basic psychological needs, morale and job satisfaction, and motivation within the context of a predominantly Australian working population. The aim of this study was to test whether engaging-transformational leadership positively predicted more autonomous motivation in the workplace. A secondary aim was to assess whether this relationship was mediated by the satisfaction of basic psychological needs, and level of morale and job satisfaction.

Method

Participants

The participants in this study were a convenience sample of adult workers (18 years and older in full-time employment working 30 hours or more per week) from a diverse range of organisations and workplaces. Participants self-reported on their relationship with their immediate work supervisor independent of their organisation. Participation was voluntary and no incentives were offered for completing the survey. Total sample size was 247 participants (*N* = 247). A detailed summary of the participant demographic information is shown in Table 1.

Table 1

Summary of Participant Demographic Information (N = 247)

Demographics		Count (*n*)	Frequency (%)
Gender	Female	142	57.5
	Male	105	42.2
Age	<20 years	0	0.0
	21 – 30 years	83	33.6
	31 – 39 years	50	20.2

	40 – 49 years	59	23.9
	50 – 59 years	47	19.0
	>60 years	8	3.2
Income	($AUD) < $20 000	3	1.2
	$20 000 - $29 999	0	0.0
	$30 000 - $39 999	2	0.8
	$40 000 - $49 999	8	3.2
	$50 000 - $59 999	22	8.9
	$60 000 - $69 999	54	21.9
	$70 000 - $79 999	47	19.0
	$80 000 - $89 999	28	11.3
	$90 000 - $99 999	29	11.7
	> $100 000	54	21.9
Organisation	Government	181	73.3
	• ADF member	57	22.7
	• Public Servant	113	45.7
	• Contractor/other	12	4.9
	Non-government	24	9.8
	• For Profit	11	4.5
	• Not for Profit	13	5.3
	Private Enterprise	42	17.0
Residency	Australia	241	97.6
	Other *	6	2.4

Note. *China (*n*=1), Malaysia (*n*=1), Philippines (*n*-1), and U.S. (*n*=3)

Fringe benefits, allowances and other remuneration packages may or may not have been included by participants when estimating their annual income. Given these limitations to the demographic questionnaire, participant's annual income data should be used with caution.

Materials

Data were collected via an online survey that consisted of: (a) an introduction to the research and confidentiality information (b) demographic questionnaire; (c) Transformational Leadership Questionnaire-Research Version (TLQ; Real World Group, 2011); (d) the Work-related Basic Need Satisfaction scale (W-BNS; Van den Broeck et al., 2010); (e) the Motivation at Work Scale (MAWS; Gagne et al., 2010); and (f) Workplace Factors Questionnaire developed by Psychology staff at the University of Southern Queensland as detailed below.

The *Demographic questionnaire* items included gender, age, income level, and organisation type and participant's time in their current job, hours worked per week, country of residence and a brief description of the type of work performed.

The *Transformational leadership questionnaire*-research version (TLQ) measured the degree of engaging leadership experienced in a participant's current job (Real World Group, 2011). This scale consisted of 42 items: six assessed showing genuine concern; six assessed networking; six assessed enabling; four assessed being honest and consistent; five assessed being accessible; five assessed being decisive; and ten assessed outcome. Responses were made using an eight-point Likert-type scale (1 = *Strongly Disagree* to 6 = *Strongly Agree* with 7 = *Not Relevant* and 8 = *Don't Know*). Items scoring a 7 or 8 were recoded and replaced with the item mean. Likert-type responses for each factor were grouped and summed to give factor scores. Potential scores for Showing Genuine Concern, Networking and Achieving and Enabling spanned 6 to 36, Being Honest and Consistent scores spanned 4 to 24, Being Accessible and

Being Decisive scores spanned 5 to 30 and Outcome Variables scores spanned 10 to 60. High scores indicated a greater degree of engaging leadership was experienced by participants in their current job. The Real World Group (2011) reported seven well-defined factors with high Cronbach Alpha coefficients (α = .83 to .95) and medium to high inter-factor correlations ranging from .39 to .73 with the exception of Outcome Variables where no Cronbach Alpha or inter-factor correlation coefficients were available at the time of this study.

The *Workplace factors questionnaire* is a shortened version of a larger *Betterworkplaces* Survey recently developed by CORE researchers at the University of Southern Queensland (CORE, 2012). The *Workplace factors questionnaire* measured morale and job satisfaction, supervisor support, and training and career development. The *Morale and job satisfaction* subscale of the *Workplace factors questionnaire* is designed to measure an individual's morale and job satisfaction at work. Morale and job satisfaction was measured by eight items such as 'My work life is excellent' (α = .91). Responses were measured on a five-point Likert scale ranging from 1 (*Totally disagree*) to 5 (*Totally agree).* Scores could potentially range between 8 and 40. Higher scores indicated greater morale and job satisfaction at work. CORE researchers tested the reliability of the *Betterworkplaces Survey* in two large surveys in 2010 (*N* = 8,486) and 2011 (*N* = 12,600) and found the reliability to be .91. The results of the CORE studies demonstrated a clear factor structure for the *Betterworkplaces Survey*, with the *Morale and job satisfaction* measure found to represent a distinct construct.

The *Work-related basic needs satisfaction scale (W-BNS)* measured basic needs satisfaction. The W-BNS is a 16 item scale designed to measure the satisfaction of the basic psychological needs for autonomy, competence, and relatedness, as defined in Self-Determination Theory (Van den Broeck et al., 2010). Autonomy was measured by six items such as 'I feel like I can be myself at my job' (α = .77). Competence was measured by four items such as 'I feel competent at my job' (α = .88). Relatedness was measured by six items such as 'I don't really feel connected with other people at my job' (α = .85). Responses were measured on a five-point Likert scale ranging from 1 (totally disagree) to 5 (totally agree). Scores could potentially range between 6 and 30 for autonomy and relatedness, and between 4 and 20 for competence. Higher scores indicated greater work-related need satisfaction across the three factors. Van den Broeck et al. tested the reliability of the W-BNS across four Dutch-speaking samples and found the reliability of the autonomy, competence, and relatedness satisfaction scales were on average .81, .85, and .82, respectively. Results of the study by Van den Broeck et al. demonstrated a clear factor structure for the W-BNS, with the three need satisfaction measures found to represent related but distinct constructs. It should be noted that this measure was validated with Dutch-speaking samples with the items translated into English using the translation/back-translation procedure.

The *Motivation At Work Scale (MAWS) measured motivation*. The MAWS is a 12 item scale developed based on the Self-Determination Theory framework. The MAWS measures motivation through four factors representing intrinsic motivation, identified regulation, introjected regulation and external regulation. To help simplify analysis the four factors can also be aggregated into measures of autonomous motivation (by combining intrinsic and identified regulation) and controlled motivation (by combining introjected and external regulation; Gagne et al., 2010). The MAWS aims to measure motivation at the workplace domain level and is not specific to any one particular task or situation. The structure and validity of the MAWS was examined by Gagne et al. using a sample group of 1644 Canadian workers in two different languages, English and French. Results demonstrated a good fit between the model and data. The subscale Cronbach alphas from the study were .89 (English) and .93 (French) for intrinsic motivation, .83 (English) and .87 (French) for identified regulation, .75 (English) and .81 (French) for introjected regulation, and .69 (English) and .91 (French) for extrinsic regulation. Each of the subscales were measured by three items each. The MAWS uses a seven-point Likert scale ranging from 1 (not at all) to 7 (exactly). Subscale scores were calculated additively and could theoretically range between 3 and 21, with higher scores representing greater presence of the subscale motivational type. By combining the

subscales of intrinsic and identified to create an overall measure of autonomous motivation, and using the same process between the introjected and external subscales to form a measure of controlled motivation, scores for autonomous and controlled motivation could theoretically range between 6 and 42.

Procedure

In preparation for data collection, a Human Research Ethics Application was approved as submitted by the University of Southern Queensland Psychology Ethics Committee: Approval number: H11REA077 dated 04 May 2011. Data were collected by self-reported response to an on-line survey between 09 May 2011 and 24 October 2011.

Prior to the distribution of the survey link to potential participants, email approval was sought from the management of various organisations available to the researchers. After organisational approval, an introductory email invited workers to voluntarily participate in the on-line study. This provided a link to the on-line survey at the University of Southern Queensland.

Once online, participants were given a brief introduction to the study including. Participants were advised that the survey was investigating the extent that leadership and motivation predicts the satisfaction of basic needs in the workplace as part of an ongoing larger study into workplace wellbeing and performance. Participants were advised of the need to be 18 years or older and employed for 30 hours or more per week. For participants requiring general feedback or who had queries about the study, contact email addresses were provided for the researchers, the project supervisor and the technical officer. Participants were advised they could withdraw themselves or their data from the study at any time without consequence to any services provided by the participant's organization, network, or the University of Southern Queensland.

After reading the informed consent details and agreeing to the terms and conditions, all participants were required to enter a randomly assigned informed consent identification number. Participants were advised to keep a record of their
unique identification number to enable any possible future request to be removed with from the study. For reasons of confidentiality and anonymity, identification numbers were not linked to submitting email addresses. Participant's names were not collected. Entering the identification number signified participants involvement was voluntary, confidential, and anonymous.

Only after completing the informed consent were participants able to access and complete the survey. Participants were required to complete each section in order before proceeding to the next in order: Informed Consent, Demographic Questionnaire, TLQ, Workplace Factors Questionnaire, W-BNS scale, and MAWS. On completion of all sections, participants were given the option to comment before submitting the overall survey and request feedback. Participant's contact details for feedback were in no way connected to their survey responses. If requested; the feedback was provided via email as a general summery of research findings and no individual information was released.

Results

The aim of this study was to test whether engaging-transformational leadership predicted more autonomous forms of motivation. The analysis was conducted using factor analysis and structural equation modelling. All data was analysed in the current study using the Statistical Package for Social Scientists (SPSS) version 19 (2010), and Analysis of Moment Structures (AMOS) version 19. A priori power analysis using G-Power version 3.1.3 ($f2 = .15$, $\alpha = .05$) estimated a minimum sample size of $N = 146$ would be required to detect a medium effect with a power of .95 (F (6,139) = 2.16, $p = .05$). The original sample size exceeded this and totalled 260 participants ($N = 260$). No data were found missing with the exception one case (P358590435) which was missing an organisational demographic. Based

on this participant reporting to be a Police Officer the missing datum was replaced with government contractor/other. Further screening found some data coded out of meaningful range. These data (coded on the TLQ as *7 = Don't know* and *8 = Not relevant*) were treated as missing data and replaced with the respective item mean. Preliminary data screening removed 11 participants who reported hours worked per week below the study's minimum 30 hours per week cut off for full-time work reducing the sample to N = 249. Two multivariate outliers (P358422384 and P358300489) with Mahalanobis distances exceeding the critical value (χ 2 (3, 249) = 16.27, p = .001) were removed. Seven potential univariate outliers were found on Item 9 of the W-BNS at -3.53 just beyond the cut-off (z > ± 3.47, p < .05). All seven responses were found to be consistent with the design of the W-BNS and the representative sample. A comparison between item means and the 5% trimmed means found these seven outliers had minimal effect on the outcome of the analyses. These seven outliers were retained. The final sample size used in the current study was N = 247.

Preliminary data analysis was conducted and the measures used in this study were subjected to Principal Axis Factoring (PAF) using SPSS version 19. The data were assessed for suitability for factor analysis prior performing PAF. Assumptions of normality and linearity were confirmed as satisfactory by visual inspection of the data using the histogram of the frequency of standardised residuals and the normal p-p plot.

Factor analyses of the scales used in this study demonstrated that all the scales were statistical valid and reliable (see Table 2). Only on the MAWS did the factor loadings deviated slightly from the theoretical construct the scale aimed to measure, with no clear factor representing the subscales of intrinsic motivation or identified regulation. Instead, the items designed to measure these scales displayed a clear loading onto a single factor; thus, factor 1 represented the construct of Autonomous Motivation. This was not considered problematic for the current study as the theoretical construct of the MAWS proposed that these items were a reliable measure of autonomous motivation. The remaining factors were a clearer fit with the MAWS design, with factor 2 representing External Regulation, and factor 3 representing Introjected Regulation. The interpretation of these results did not deviate substantially from previous research on the MAWS and whilst the scale did not clearly measure the four distinct motivational subtypes proposed by the scale authors (Gagne et al., 2010), it did supply a clear measure of the motivational concepts relevant to this study. Simultaneous multiple regressions were used to identify predictors from TLQ Engaging, W-BNS Autonomy, Relatedness, and Competence, and MAW Introjected and External Regulation on MAW Autonomous motivation (see Table 3).

Table 2.

Summary Statistics of TLQ Engaging, Morale and Job Satisfaction, W-BNS Autonomy, Relatedness, and Competence, and MAW Autonomous motivation, and Introjected and External Regulation (N = 247)

	Total Items	Scale Range	Observed Range	*M [SD]*	*CI* [95%]	*a*
TLQ Enabling	6	(6, 36)	(6, 36)	28.28 [7.47]	[27.35 – 29.22]	.93
Morale & Job satisfaction	8	(8, 40)	(9, 40)	27.68 [6.56]	[26.86 – 28.51]	.91
W-BNS Autonomy	6	(6, 30)	(8, 30)	19.92 [4.35]	[19.42 – 20.43]	.77
W-BNS Relatedness	6	(6, 30)	(10, 30)	22.11 [4.36]	[21.56 – 22.66]	.85
W-BNS Competence	4	(4, 20)	(8, 20)	16.36 [2.49]	[16.04 – 16.67]	.88
MAW Autonomous Motivation	6	(6, 42)	(7, 42)	26.04 [7.39]	[25.11 – 26.96]	.90

	Total Items	Scale Range	Observed Range	*M [SD]*	*CI* [95%]	*α*
MAW Introjected Regulation	3	(3, 21)	(3, 19)	8.51 [3.77]	[8.03 – 8.98]	.76
MAW External Regulation	3	(3, 21)	(3, 21)	10.99 [3.85]	[10.55 – 11.47]	.74

Note. *M* = mean. *SD* = standard deviation. *CI* = confidence interval. *α* = Cronbach's alpha.

Table 3.

Simultaneous Multiple regression of Predictors TLQ Engaging, W-BNS Autonomy, Relatedness, and Competence, and MAW Introjected and External Regulation on MAW Autonomous motivation (N = 247)

	MAW Autonomous Motivation (output)	1	2	3	4	5	6	*B*	*β*	*sr2*
1. TLQ Enabling	.43**	-						.07ns	. 07ns	.01
2. Morale & Job satisfaction	.62**	.53**	-					.50**	.45**	.18
3. W-BNS Autonomy	.47**	.54**	.62**	-				.05 ns	.03ns	.00
4. W-BNS Relatedness	.38**	.37**	.41**	.44**	-			.15 ns	.09ns	.01
5. W-BNS Competence	.35**	. 18**	.25**	.28**	.28**	-		.52**	.18**	.05
	.33**	.17**	.13*	.11*	.08ns	.07ns	-	.48**	.25**	.10
	-.13*	-.05ns	-.14*	.14*	-.11*	.07ns	.13*	.14 ns	-.07ns	.01

Note. ** $p < .01$; * $p < .05$; ns = non-significant; *B = unstandardised coefficients; β = standardised coefficients;* R^2 = .50**; Adjusted R^2 = .49**; R = .71**; unique variability = .36; shared variability = .14

Structural equation modelling was used to allow a comparison of the effectiveness of the interaction between the predictor variables and the subtypes of motivation. The initial model focused only on the variables of Autonomy, Relatedness, and Competence as predictors of Autonomous Motivation, Introjected Regulation, and External Regulation. The comparative fit index $\chi2$ (3) = 32.69, p = .00, comparative fit index (CFI) = .85, the Tucker-Lewis fit index (TLI) = .24, and the root mean square error of approximation (RMSEA) = .20, indicated that the model was not a good fit for the data. Another model was specified with the inclusion of paths accounting for the covariance between Autonomous Motivation and Introjected Regulation, and between Introjected Regulation and External Regulation. The fit statistic for this model indicated that it was a good fit with the
data, $\chi2$ (1) = .80, p = .37, CFI = 1.00, TLI = 1.02, RMSEA = .00. At this point, the SEM did not include any of the leadership measures or the measure of morale and job satisfaction. In order to facilitate a better understanding of the role of basic need satisfaction, a third model was then specified with the three basic psychological needs specified as indicators of a latent construct called Basic Need Satisfaction, and the of the measure of Enabling leadership was included as a exogenous variable while Morale and Job Satisfaction was specified as a mediator variable. The fit statistic for this model indicated that it was a good fit with the data, $\chi2$ (16) = 21.42, p = .16, CFI = .99, TLI = .98, RMSEA = .04. Results for this model are presented in Figure 3. The standardised regression coefficients are shown for all analysed paths. All of the

reported paths were found to be statistically significant, with the exceptions of the paths leading from the Basic Need Satisfaction variable to both Introjected Regulation and External Regulation ($p > .05$).

Figure 3

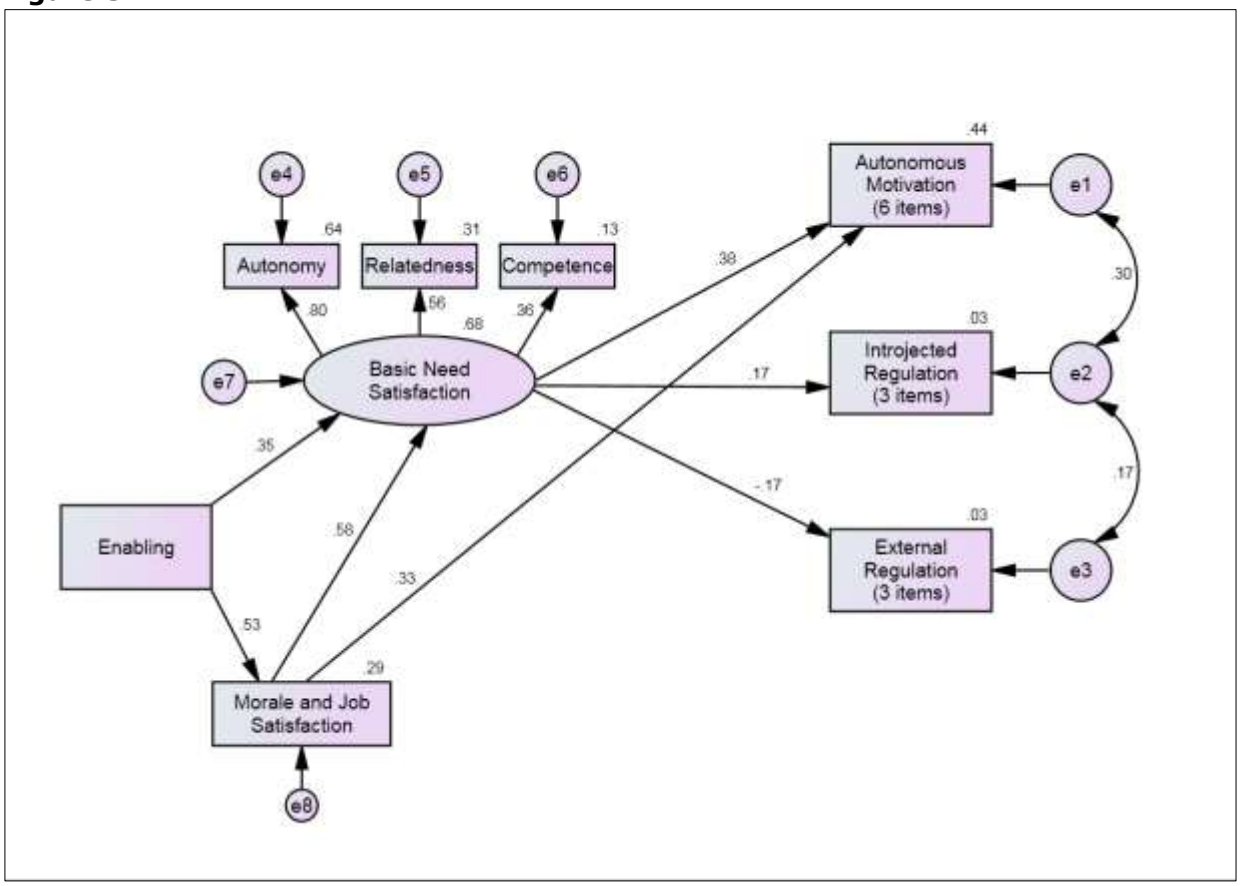

Figure 3. The engaging-transformational leadership enabling autonomous motivation model demonstrating that basic psychological needs satisfaction, and morale and job satisfaction mediates the predictive relationship between enabling leadership and autonomous motivation in a sample of Australian workers aged 18 years or older and employed 30 or more hours per week (N = 247).

Results indicated that Enabling explained 29% of the variance in Morale and Job Satisfaction, while Enabling coupled with Morale and Job Satisfaction explained 68% of the variance of the latent construct Basic Need Satisfaction. Taken together, Basic Need Satisfaction and Morale and Job Satisfaction explained 44% of the variance in Autonomous Motivation. Neither Enabling leadership nor Morale and Job Satisfaction predicted the more controlled types of motivation (Introjected Regulation and External Regulation) confirming that these forms of motivation are influenced by different than the autonomous type of motivation.

Discussion

The objective of the current study was to test whether engaging-transformational leadership predicted more autonomous motivation in the workplace. Using the framework developed in SDT, the current study aimed to examine the relationship between enabling leadership, basic psychological needs, morale and job satisfaction, and motivation. This study extends the previous research in this area by using data from an adult working population instead of the commonly used student population, whilst also analysing motivation in a multidimensional fashion that accounted for the subtypes of motivation. It also addressed the gap in current research literature about how enabling leadership and SDT might interact to predict motivation by providing further cross-cultural data from an Australian sample.

As expected, the model shows a positive relationship between engaging-transformational leadership and autonomous motivation. Overall, this is of significant practical utility for organisations as it demonstrates that when leaders and managers adopt an enabling leadership style employee are more likely to exhibit greater subjective levels of autonomous motivation; which has often been linked in the research literature as having strong correlations with worker performance, retention, and general well-been (Deci & Ryan, 2000; Gagne et al., 2010; Gegenfurtner et al., 2009). The results also suggest that enabling leadership styles are effective at predicating higher levels of employee autonomous motivation not just when utilised by upper management (i.e. CEOs) but that the benefits can also be observed when employed at all leadership levels of an organisation.

The relationship between enabling leadership and autonomous motivation was mediated by basic need satisfaction as well as morale and job satisfaction. There is a strong relationship between enabling leadership and the subjective presence of job satisfaction and morale. This has beneficial implications not only as a desired organisational outcome in itself, but it identifies job satisfaction and morale as a strong mediator in predicting autonomous motivation. From a conceptual perspective the model suggests that an enabling leadership style has a direct influence on employee job satisfaction and morale, and a direct relationship with satisfying the basic psychological needs as defined in SDT. Taken together satisfaction of basic psychological needs and employee job satisfaction and morale are strong predictors of subjective autonomous motivation. Thus suggesting the underlying principles of how enabling leadership facilities the development of autonomous motivation.

Enabling is useful in this context as of all the variables measured in this study it is the only one that can be taught to leaders in a conventional sense; one cannot be trained in having higher morale, job satisfaction, or autonomous motivation. Thus it is useful as a means of developing organisational interventions targeting morale, job satisfaction and autonomous motivation. It should be noted that one could also argue the case that basic need satisfaction is the path that enabling takes in generating the outcome of morale and job satisfaction. Although the stronger relationship between enabling and morale and job satisfaction compared to the relationship between enabling and basic needs satisfaction supports the inclusion of morale and job satisfaction as a distinct mediator variable.

Furthermore results indicated that autonomous motivation was positively related with the satisfaction of the basic psychological needs, whilst no significant relationship was found between the basic psychological needs and the two subtypes of controlled motivation. These findings are consistent with the reviewed literature as to the relationship between the basic psychological needs and motivation, thus providing further support that the observed effects are able to be generalised to human populations regardless of employment or cultural influences.

The theoretical implications of these results demonstrate that autonomous motivation can be facilitated by environmental factors such as enabling leadership styles. It also suggests that autonomous and controlled motivation, whilst at theoretical opposites on the self-determination continuum of motivation, are not in fact mutually exclusive. Results of the current study have shown them to be influenced by different antecedents. This implies that jobs that support the satisfaction of psychological needs are more likely to encourage the development of autonomous motivation, but reasonable implementation of controlled motivational techniques are unlikely to have an effect on need satisfaction, thus not reducing autonomous motivation. It is therefore possible to gain short-term benefits by the judicial application of rewards or other interventions generally considered extrinsically motivating, without impairing the long-term motivational benefits found by encouraging an organisational culture that supports the satisfaction of psychological needs.

Overall, it has been shown that enabling leadership is supportive to the expression of both job satisfaction and morale, and ultimately the subjective expression of autonomous motivation.

These results are useful for organisations that wish to improve their employees' motivation, without needing to account for highly variable and difficult to change factors such as personality. Adopting a enabling leadership style that encourages autonomous motivation through the satisfaction of basic psychological needs makes sense not only because of the probable improvements in performance and employee wellbeing, but it also makes economic sense as it is likely to reduce unnecessary financial incentives to motivate and retain employees, thereby reducing ongoing expenditure and the cost of recruiting and retraining new employees.

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UNIVERSITY OF SOUTHERN QUEENSLAND

Research Colloquia and Showcase Poster Collection

12th and 13th June 2013

University of Southern Queensland

Metaphor in a global wine market

Researcher/s: Allison Creed

Metaphor in a global wine market

Conceptual framework for PhD.

Allison Creed (PhD Candidate) • Faculty of Education
University of Southern Queensland • Toowoomba • Queensland • Australia

INTRODUCTION

- Metaphor is embedded in how we think, talk and feel about wine. The genre of wine reviews or tasting notes frequently engage metaphor to frame understanding and transfer sensory experiences. They accompany Australian wine into the global market crossing cultural and linguistic borders to inform and influence consumer choice, expectations and purchasing behaviour.
- The research aims to identify and analyse linguistic metaphors in Australian wine tasting notes to inform a comparative study of metaphor from the perspective of Australian and Chinese wine educators applying the theoretical framework of Conceptual Metaphor Theory.

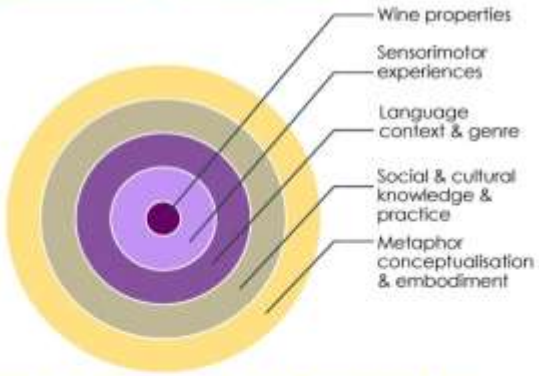
Cross-cultural communication

- Australian wine exports to China have risen from A$2 million in 2000-01 to A$185 million in 2010-11.
- Wine reviews or tasting notes are a useful communicative tool and they play a valuable role in wine education and acculturation.
- Metaphor conceptualisation varies cross-culturally influencing language comprehension.
- Understanding the range of metaphor meanings is an area of research receiving insufficient attention.
- Metaphor in wine discourse presents the opportunity to study the interactive and dynamic relationship between language, culture, perception and understanding.

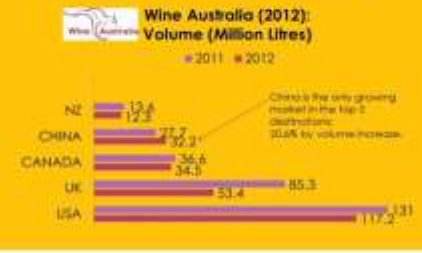
PROPOSED METHODOLOGY

- Data Sources: 1. Dan Murphy's Fine Wine Buyer's Guides; 2. Wine & Spirit Education Trust wine educators (Australia & China).
- Phase 1. Metaphor identification following the Metaphor Identification Procedure VU University (MIPVU) developed by Steen, Dorst, Herrmann, Kaal, Krennmayr and Pasma (2010).
- Phase 2. Semantic analysis of the form, frequency and function of personifying linguistic metaphors following Lehrer (2009).
- Phase 3. Conceptual analysis to comparatively analyse metaphor meaning range in wine educators following Conceptual Metaphor Theory (Lakoff & Johnston, 1980) and informed by theories of embodied-grounded cognition.

Conceptual metaphor: Motivation and constraints



Australian wine tasting notes: How meaningful are they cross-culturally?



JUSTIFICATION FOR PROPOSAL

- Metaphor plays a significant cognitive and communicative role in the genre of wine reviews/tasting notes.
- Exploring cross-cultural communication through the lens of Conceptual Metaphor Theory facilitates the analysis of variation in metaphor conceptualisation, embodiment and comprehension.
- Examining the significance of metaphoric competence in communicative competence encompassing grammatical, textual, illocutionary, sociolinguistic and strategic competence is of particular relevance for pedagogical design in teaching and learning about wine and language.

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Lifecycle of the project management office, its influence on strategic decision making and impact on the socio-economic environment

Researcher/s: Eric Darling

Lifecycle of the Project Management Office, its influence on strategic decision making and impact on the socio-economic environment

Author: Eric Darling, Supervisors: Dr Jon Whitty, Dr Eric Too
School of Management and Marketing, Faculty of Business and Law
University of Southern Queensland ● Springfield ● Queensland ● Australia

1. INTRODUCTION

Project Management has become the de facto standard method by which organisations complete work. Regularly the Project Management Office (PMO) is considered the "silver bullet" solution for fixing high rates of failure experienced in project related work. This research aims to explore the nature, behaviour and reporting systems of PMO's and how they influence strategic decision making and impact on the organisations goals.

2. The Literature

Two frequently occurring literature themes make up the body of PMO literature.

1. How to create a PMO. Authors provide several models of what a PMO looks like and describe the linear steps to clone one of these PMO's into the readers own organisation. This philosophy is solution focused and frequently found in literature with the agenda of selling a methodology, best practice or a certification.

2. No 'one right way' to create a PMO. This literature argues that creating an ideal PMO is probably impossible. Of the hundreds of PMO's observed all PMO's have significant structural differences. This philosophy is dominated by the research community, it is very much emerging.

PMO's are considered to be in a constant state of evolution, they change to meet a range of internal and external factors ultimately in to progress the interest of their host organisation and the actors within it. The PMO Triangle (Fig. 1) takes a simplified view of how PMO's evolve over time.

Fig. 1 The evolutionary stages of the PMO.

3. The Literature Gap

The literature does not provide a concise lifecycle of the PMO particularly concerning the influence of the PMO on the host organisation or the sociological perspective which is almost completely void from project management literature.

An opportunity exists to conduct research in regard to the PMO lifecycle, its impact on the host, and the complexity of social interactions that ensue. There is little clear description of the influence of collegial relationships within PMO teams and how this acts in the lifecycle and influence of the PMO.

In summary the structure and culture of PMO's is an under researched area which may provide organisational insights on developing organisational resiliency.

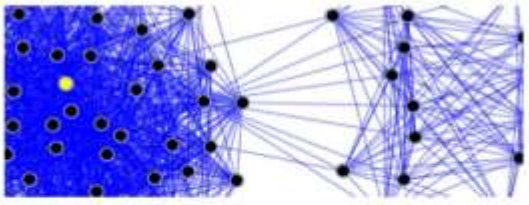
4. Research Proposal

This research will examine the lifecycle of the PMO with particular emphasis on how they evolve from one state to another; how they influence the organisation in achieving the organisations strategic objective; and lastly the social culture of how PMO's work within the greater host organisation.

5. Methodology

Initial study is of ethnographic research methodology. The study comprises four steps:

1. Intensive open-ended interviews with project practitioners about their view of the PMO and wider social activities;
2. Survey of all project practitioners in the study;
3. Investigative survey of project reporting mechanisms and alignment to observed memes; and
4. Intensive open-ended interviews with senior executive staff who are the recipients of project reporting mechanisms.



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Teaching professional skills to engineering students – an investigation

Researcher/s: Dr David Thorpe

Teaching Professional Skills to Engineering Students – an Investigation

Dr David Thorpe • Faculty of Engineering and Surveying
University of Southern Queensland • Toowoomba • Queensland • Australia

THE SUSTAINABILITY AWARE ENGINEER

INTRODUCTION

Meeting professional requirements, such as ethical and sustainable practices, is an increasingly significant matter for many professions. Professional associations, such as Engineers Australia, are therefore increasingly requiring members to not only have technical competencies, but also to interact with other professions and meet ethical and community requirements. Industry tends to support such requirements, but can be slow to adopt some of them.

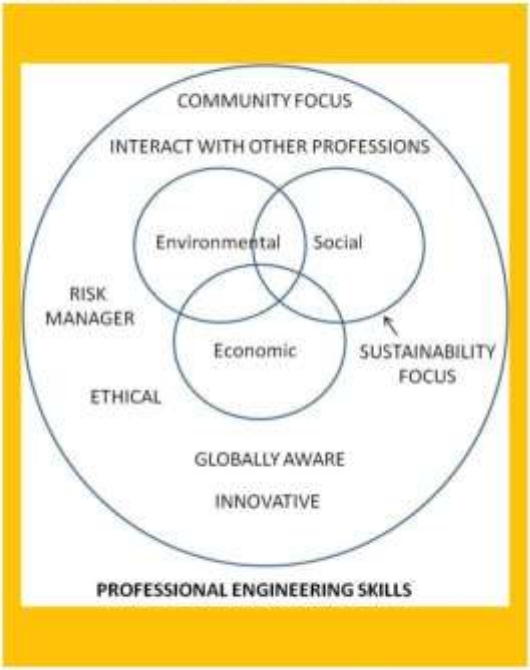
It is therefore highly desirable for engineering graduates to understand and apply those professional requirements, like innovation and sustainability, that enhance their contribution to the community, and at the same time address the cultural differences between them and other professions, the community and international colleagues. While the current engineering curriculum has the *Technology, Sustainability and Society* course and other courses that addresses many professional areas, it would be beneficial if the skills to undertake them could be incorporated in a range of courses in the engineering curriculum.

METHODOLOGY

1. Undertake literature review of the teaching processes for selected professional skills such as sustainability.
2. Review selected teaching processes in depth, using a program management approach or similar methodology.
3. Conduct a survey of government, industry and community organisations to better understand which professional skills are the most important to them and why.
4. Visit those tertiary institutions in Australia and elsewhere that utilise the selected processes, to evaluate them in depth.
5. Propose teaching approaches suitable for the University of Southern Queensland to develop these skills in students.
6. Pilot and test selected approaches.

Progress to date

- Discussions have been held with senior teaching academics in the University of Southern Queensland with respect to those professional skills on which to focus, and the research approach.
- Sustainability, innovation and risk management have been selected as the main focus areas.
- A partial literature review has been undertaken. This review is continuing.
- A book chapter exploring innovative approaches to influence sustainable engineering practice is in being written.
- Linkages are being developed with other University of Southern Queensland academics interested in similar areas.
- A preliminary approach, using a trans-disciplinary approach based on systems methodology, has been considered as a possible teaching approach.



The Way Forward

- Complete literature review.
- Undertake other steps in the methodology, and in particular complete the evaluation of existing teaching approaches to develop professional skills in engineering students.
- Undertake industry and community survey.
- Explore innovative teaching approaches in more depth.
- Seek leave and funding to visit other tertiary institutions to study their teaching of professional skills in depth.
- Finalise and pilot suggested approach.

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Sustainable Roads

Researcher/s: Dr David Thorpe

Sustainable Roads

Dr David Thorpe • Faculty of Engineering and Surveying
University of Southern Queensland • Toowoomba • Queensland • Australia

INTRODUCTION

Roads are essential for the functioning of modern society, and play a key role in the carriage and distribution of goods, services and people.

Modern roads need to be planned, designed, constructed, maintained and disposed of sustainably.

Road environment and the community the road serves are important considerations in road development and maintenance.

Environmental considerations include embodied energy in materials and water sensitive design.

Key roads should have continued functionality during and immediately after major natural disasters.

SUSTAINABLE ROADS RESEARCH PROJECT

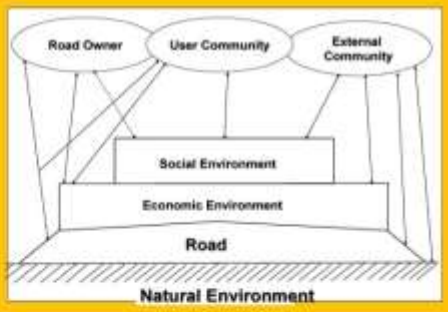
Aim is to develop a methodology for optimising sustainable road planning, design, construction, maintenance and operation

Main tasks:
- Definition of the term "sustainable road"
- Review of issues in sustainable road planning, design, development , management
- Analysis of stakeholder requirements in sustainable road development and use
- Evaluation of green house gas emission issues in the road life cycle, including vehicle operation
- Assessment of material selection for optimum balance of embodied energy and construction energy, including recycling
- Assessment of energy usage by vehicles using the road
- Requirements for road resilience and ongoing availability of key roads in times of disaster
- Development of a methodology and/or model to optimise sustainable road development and management on a while of life basis

Considerations in the research

- Purpose for which the road is developed
- Environment in which the road is situated
- Requirements of communities served by the road
- Requirements of other stakeholders
- Whole of life road development and management
- Sustainability rating systems (e.g., AGIC, CEEQUAL, Greenroads)
- Sustainable construction and maintenance processes
- Material selection and use
- Water management (e.g., permeable concrete pavement)
- Road resilience in natural disasters
- Need for ongoing availability of key roads
- Sustainable uses of roads (e.g., in generating energy)

Relationship between road, its environments and the communities served by the road



NEXT STEPS

- Publish issues paper on research needs for sustainable roads
- Link with local and state government authorities
- Network with key roads professionals
- Seek seed funding to investigate issues in depth
- Promote need for research in sustainable roads
- Link with other researchers
- Encourage student research in this area
- Apply for suitable research grant for in depth investigation

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Enabling change in the workplace: introducing the supportive workplace and wellbeing study

Researcher/s: David Smith

Enabling Change in the Workplace: Introducing the Supportive Workplace and Wellbeing Study

David Smith BSc Hons (1), FCMI, MACA • Faculty of Sciences• Department of Psychology
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INTRODUCTION

Supportive leadership and supervision have been identified as major factors in predicting the quality personal and working relationships among co-workers. Team trust and respect that flows from quality leadership and supervision impacts team member's empowerment, quality of working life, work engagement and resultant productivity.

The Supportive Workplace and Wellbeing (SWW) study uses a positive psychological approach to investigate causal chains among the independent variables; *direct leadership support*, *civility* and *respect* at the group level and *psychological empowerment* at the individual level, that impact the dependent variable *work-related quality of life* at the individual level. Further, the SWW study explores the relationships of these causal chains with *employee engagement*. The SWW study uses the RESPECT Model Drivers (Recognition, Empowerment, Supportive-feedback, Partnering, Expectations, Consideration, and Trust) to explain the findings to business.

Specifically, the SWW study tests the impacts of U.K. developed engaging–transformational leadership in the workplace, predominately, the Australian business culture.

CONCEPTUAL MODEL

Figure 1. Multilevel concept of leadership driven impacts of workplace climate on worker enablement at the group and individual levels, over time.

METHODOLOGY

The SWW study is a Doctoral multilevel longitudinal investigation in the workplace that uses test re-test methodology.

Participants are drawn and redrawn from a convenience sample of adult employees 18 years and older working 15 hours or more per week in teams of not less than 3 workers.

G*Power estimates a minimum Level 1 sample size of N_1 = 450 individuals. Best multilevel power estimates available suggest a minimum Level 2 sample size of $N_g > 20$ groups with group data aggregated from not less that 3 team members to ensure participant confidentiality. Participants are resampled at times not less than 4 months apart.

Screened data are to be explored by factor analyses to ascertain structure and applicability to the Australian business culture. Inter- and intra-scale correlation is then used to identify significant relationships before structural equation modelling in AMOS and multilevel modelling in Mplus are used to test models of best fit. Findings are then interpreted using the RESPECT Model drivers.

HYPOTHESISES

Generally, it is hypothesised that improved workplace climate enables increased workplace enablement.

Specifically:

- H1 Workplace supportive engaging leadership of groups predicts increased perceptions of civility and respect,
- H2 Workplace supportive engaging leadership of groups predicts increased psychological empowerment of individuals,
- H3 Workplace supportive engaging leadership at the group level, mediated by psychological empowerment at the individual level, predicts increased quality of working life at the individual level,
- H4 Workplace supportive engaging leadership mediated by civility and respect at the group level predicts increased quality of working life at the individual level,
- H5 Workplace, civility and respect at the group level predict increased quality of working life at the individual level
- H6 At the individual workplace, level, psychological empowerment predicts increased quality of working life,
- H7.1 to 7.6 the multilevel workplace effects predicted in H1 to H6 form causal chains, over time, and
- H8. A climate of increased civility and respect at work, and enabling improved quality of working life indicates increased employee engagement at work.

CONCLUSION

The SWW study is designed to gain new knowledge, greater understanding and insight into complex social workplace factors that contribute to an employee's wellbeing. It aims to investigate how an organisation's leadership style and practices empower individuals and teams, and contributes to the quality of working life and wellbeing.

The benefits of this study may include, identifying how to improve managements' support to workers, and promoting positive workplace engagement among co-workers.

The impact of research findings may enable future development of useful organisational practises that increase overall productivity and wellbeing – *Enabling more with less.*

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Engaging leadership: enabling autonomous motiviation and satisfaction at work

Researcher/s: Danny Boga, David Smith and Professor M. Anthony Machin

Engaging Leadership: Enabling autonomous motivation and satisfaction at work

Danny Boga, David Smith, and Professor M. Anthony Machin
Faculty of Sciences | Psychology
University of Southern Queensland • Toowoomba • Queensland • Australia

INTRODUCTION

Optimal functioning at work is determined not only by the strength of the motivational forces but also by the type of motivation. Self-Determination Theory (SDT) recognises that an individual can be simultaneously affected by different degrees of intrinsic and extrinsic motivation (see Figure 1).

The current study is unique in assessing the utility of Engaging-Transformational Leadership factors by measuring them against the outcomes of predicting Autonomous Motivation, Basic Need Satisfaction, and Morale and Job Satisfaction. This study addresses the over representation of student populations and senior management reporting in similar research, whilst providing a gender-inclusive multicultural cross-section of Australian adult full-time workers, reporting independently of their host organisations.

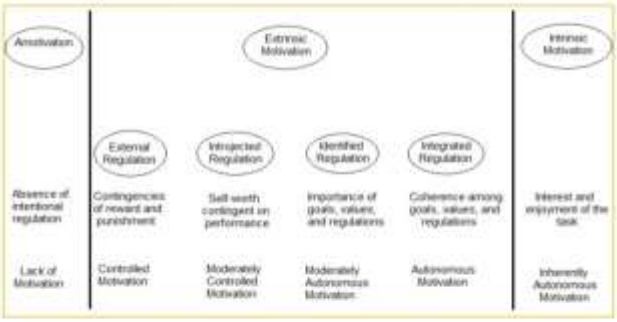

Figure 1. The Self-Determination Theory continuum of motivation, showing the nature of the regulation for each type of motivation and its placement along the continuum, indexing the degree to which each represents controlled and autonomous motivation (Gagne & Deci, 2005).

METHODOLOGY

Participants in this study (N = 247) were a convenience sample of Australian adult full-time workers (18 years and older, working 30 hours or more per week) from a diverse range of organisations and workplaces. Data were collected via an online survey that consisted of four separate scales measuring Engaging-Transformational Leadership, Work-Related Basic Needs Satisfaction, Motivation at Work, and Workplace factors.

RESULTS

Results indicated that of all the factors examined within the Engaging-Transformational Leadership model, Enabling was the single greatest predictor variable. The best fit pathway for the influence of Enabling leadership onto Autonomous Motivation was via the variables of Basic Need Satisfaction and Morale and Job Satisfaction.

Enabling contributed 29% to the positive prediction of Morale and Job Satisfaction. Enabling coupled with Morale and Job Satisfaction contributed 68% to the positive prediction of Basic Need Satisfaction. Taken together, Basic Need Satisfaction and Morale and Job Satisfaction contributed 44% to the positive prediction of Autonomous Motivation (see Figure 2).

No significant relationship was found between Basic Need Satisfaction and the SDT controlled motivational subtypes of Introjected and External Regulation.

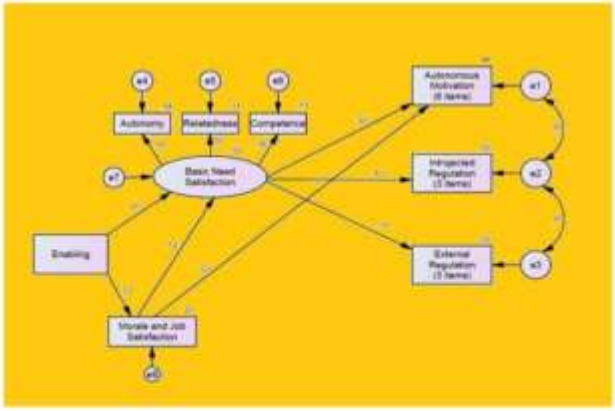

Figure 2. The enabling leadership predicting autonomous motivation, basic need satisfaction, morale and job satisfaction model.

CONCLUSIONS

The theoretical implications of these results demonstrate that autonomous motivation can be facilitated by environmental factors such as enabling leadership styles. It also suggests that autonomous and controlled motivation, whilst at theoretical opposites on the self-determination continuum of motivation, are not in fact mutually exclusive; with the current study suggesting them to be influenced by different antecedents.

Overall, it has been shown that enabling leadership is predictive of the expression of both job satisfaction and morale, and ultimately the subjective expression of autonomous motivation. These results are useful for organisations that wish to improve their employees' motivation, without needing to account for highly variable and difficult to change factors such as leaders/managers' personalities. This makes sense not only because of the probable improvements in performance and employee wellbeing, but it also makes economic sense as it is likely to reduce unnecessary financial incentives to motivate and retain employees.

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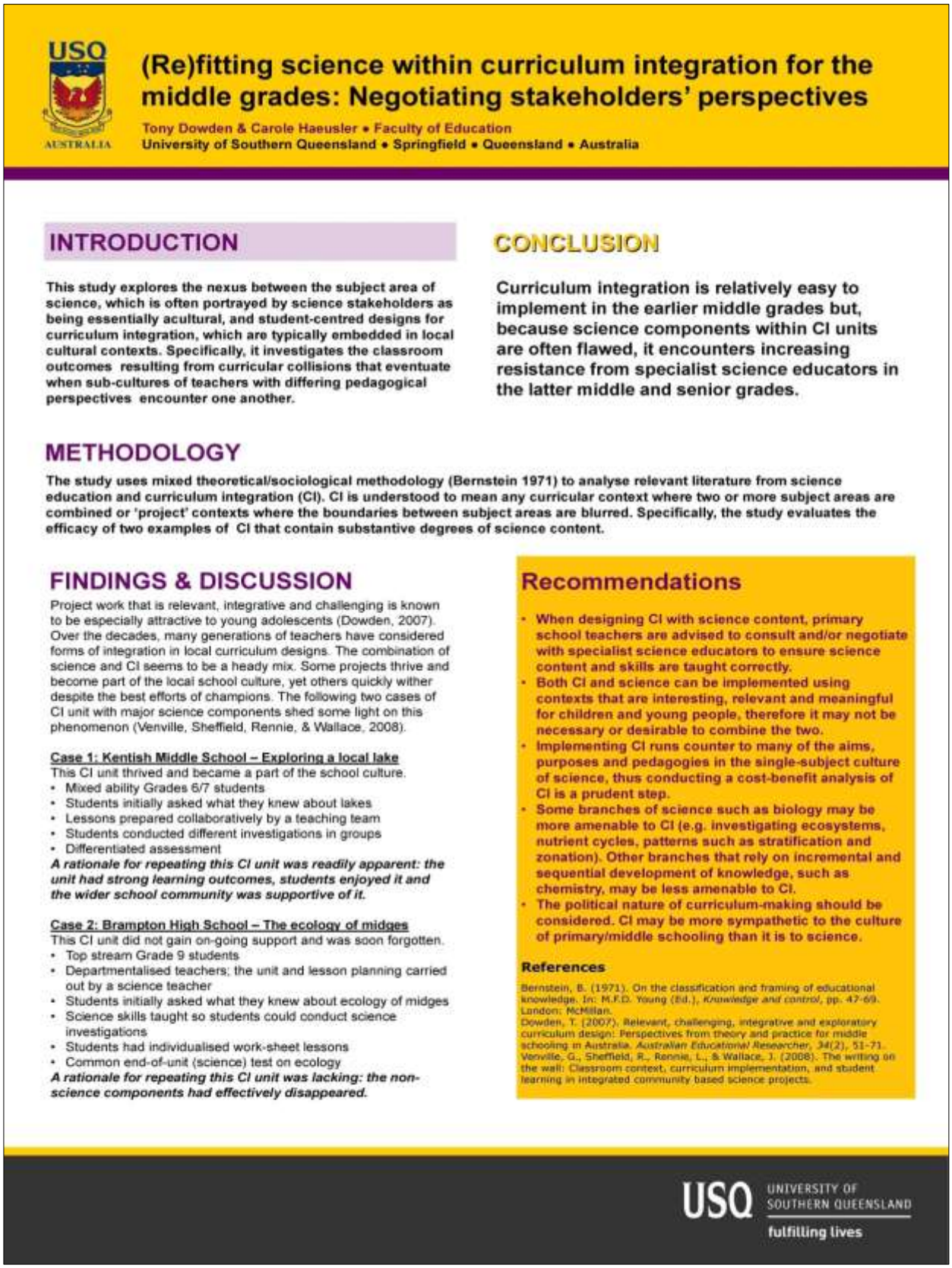
(Re)fitting science within curriculum integration for the middle grades: Negotiating stakeholders' perspectives

Researcher/s: Drs Tony Dowden and Carole Haeusler



(Re)fitting science within curriculum integration for the middle grades: Negotiating stakeholders' perspectives

Tony Dowden & Carole Haeusler • Faculty of Education
University of Southern Queensland • Springfield • Queensland • Australia

INTRODUCTION

This study explores the nexus between the subject area of science, which is often portrayed by science stakeholders as being essentially acultural, and student-centred designs for curriculum integration, which are typically embedded in local cultural contexts. Specifically, it investigates the classroom outcomes resulting from curricular collisions that eventuate when sub-cultures of teachers with differing pedagogical perspectives encounter one another.

CONCLUSION

Curriculum integration is relatively easy to implement in the earlier middle grades but, because science components within CI units are often flawed, it encounters increasing resistance from specialist science educators in the latter middle and senior grades.

METHODOLOGY

The study uses mixed theoretical/sociological methodology (Bernstein 1971) to analyse relevant literature from science education and curriculum integration (CI). CI is understood to mean any curricular context where two or more subject areas are combined or 'project' contexts where the boundaries between subject areas are blurred. Specifically, the study evaluates the efficacy of two examples of CI that contain substantive degrees of science content.

FINDINGS & DISCUSSION

Project work that is relevant, integrative and challenging is known to be especially attractive to young adolescents (Dowden, 2007). Over the decades, many generations of teachers have considered forms of integration in local curriculum designs. The combination of science and CI seems to be a heady mix. Some projects thrive and become part of the local school culture, yet others quickly wither despite the best efforts of champions. The following two cases of CI unit with major science components shed some light on this phenomenon (Venville, Sheffield, Rennie, & Wallace, 2008).

Case 1: Kentish Middle School – Exploring a local lake
This CI unit thrived and became a part of the school culture.
- Mixed ability Grades 6/7 students
- Students initially asked what they knew about lakes
- Lessons prepared collaboratively by a teaching team
- Students conducted different investigations in groups
- Differentiated assessment

A rationale for repeating this CI unit was readily apparent: the unit had strong learning outcomes, students enjoyed it and the wider school community was supportive of it.

Case 2: Brampton High School – The ecology of midges
This CI unit did not gain on-going support and was soon forgotten.
- Top stream Grade 9 students
- Departmentalised teachers; the unit and lesson planning carried out by a science teacher
- Students initially asked what they knew about ecology of midges
- Science skills taught so students could conduct science investigations
- Students had individualised work-sheet lessons
- Common end-of-unit (science) test on ecology

A rationale for repeating this CI unit was lacking: the non-science components had effectively disappeared.

Recommendations

- When designing CI with science content, primary school teachers are advised to consult and/or negotiate with specialist science educators to ensure science content and skills are taught correctly.
- Both CI and science can be implemented using contexts that are interesting, relevant and meaningful for children and young people, therefore it may not be necessary or desirable to combine the two.
- Implementing CI runs counter to many of the aims, purposes and pedagogies in the single-subject culture of science, thus conducting a cost-benefit analysis of CI is a prudent step.
- Some branches of science such as biology may be more amenable to CI (e.g. investigating ecosystems, nutrient cycles, patterns such as stratification and zonation). Other branches that rely on incremental and sequential development of knowledge, such as chemistry, may be less amenable to CI.
- The political nature of curriculum-making should be considered. CI may be more sympathetic to the culture of primary/middle schooling than it is to science.

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Intercultural perspectives of equine-facilitated learning Ask a simple questions

Researcher/s: Christine Hall

Intercultural perspectives of equine-facilitated learning

Ask a simple question...

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University of Southern Queensland • Toowoomba • Queensland • Australia

Introduction

Defining equine-facilitated learning (EFL) in coach education is part of a larger doctoral study exploring teaching styles used by equestrian coaches. The term EFL or its variations are used internationally in psychotherapy, equestrianism and business professions. Subsequently, what and how students learn from horses in EFL activities are described in many different ways.

The concept of EFL is relatively new in Australia. Equestrian coaches asked coach educators two related questions: *What is equine-facilitated learning?* and *How do we coach it?* Coach educators are responsible for developing education programs in equestrian sport. These questions need to be addressed to develop quality coach education for equestrian coaches.

For a doctoral student and coach educator, the two questions guide the larger study. In this presentation, the first question is addressed.

Methodology

As part of the larger doctoral study, an extensive review of the literature has been completed. The relevant EFL literature was reviewed and mapped (**Figure 1**). Not all contributions from the literature are shown.

Figure 1. Mapping equine-facilitated learning literature

Results

Equine-facilitated learning is not well defined from a coach education perspective. Differing cultural perspectives of coaching or facilitating EFL activities were expressed from psychotherapy, equestrianism and business.

Three intercultural commonalities of EFL were identified:

- the horse is an integral part of the coaching partnership,
- safety remains paramount whilst learning, and
- it is the experience with the horse that is important.

An intentional *liquid* working definition was distilled from the three commonalities to use in the larger doctoral study.

EFL is defined as ***an interactive learning experience where the coach and the horse contribute to what the student learns.***

Conclusion

The liquid definition acknowledges the differences and similarities from several EFL cultures in an effort to move from *otherness*. From the extensive review, the EFL literature was distilled to the working definition so that equestrian coaches know what EFL is.

By addressing the first question, the doctoral study can be moved forward to the second question: *How do we coach EFL?* Then teaching styles used by equestrian coaches can be further explored.

An expected outcome of the larger doctoral study is to find ways to develop quality coach education that will benefit equestrian sport.

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Developing English language learners (ELLs) Linguistic efficacy through total physical response storytelling (TPRS drawing on understandings of the 'flow' phenomenon

Researcher/s: Dr Agil Zavros and Dr Helmu Geilblinger

USQ AUSTRALIA

Developing English Language Learners (ELLs) Linguistic Efficacy through Total Physical Response Storytelling (TPRS) drawing on understandings of the "flow" phenomenon.

Dr. Agli Zavros and Dr. Helmut Geiblinger• Faculty of Education
University of Southern Queensland • Toowoomba • Queensland • Australia

INTRODUCTION

The authors have learnt English as their second language and draw on this narrative experience to contextualise the key ideas in this research presentation. Education research addressing the issues of inclusion and diversity highlight the importance of re-examining pervasive discourses that define the experiences of learners (Ashman & Elkins, 2008). This research explores the relationship between these two theories in supporting English Language Learners (ELL) linguistic efficacy. Csikszentmihalyi (1990) suggests that for ELLs there are critical experiences that either support or hinder language acquisition and that this experiences relate to the notion of "flow".

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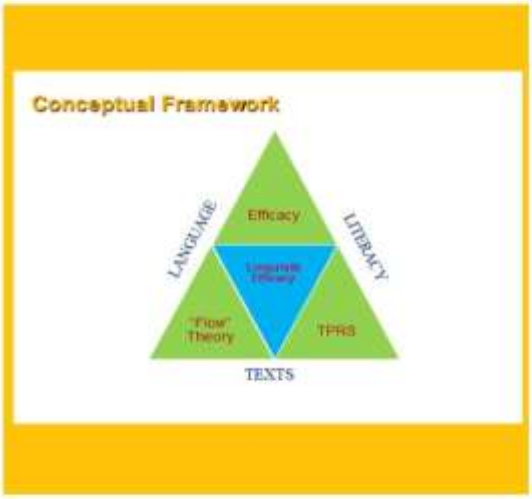
METHODOLOGY

Total Physical Response Storytelling (TPRS) is a pedagogical method that closely aligns with Krashen's (1987) theory. This paper discusses TPRS in relation to the "flow" phenomenon, a mental state in which a person is fully immersed in what they are doing, characterised by a feeling of energised focus, dedication, and feelings of success and engagement (Jackson and Csikszentmihalyi, 1999).

BODY

The current educational landscape necessitates the testing of students' language skills, forgetting the organic manner in which language is acquired. High stakes testing regimes often result in pedagogical practices that at times ignore key principles of language acquisition. This paper explores the relationship between these two theories in supporting English Language Learners (ELL) linguistic efficacy. Efficacy beliefs "are constructed from four principal sources of information: enacted mastery experience that serves as indicators of capability; vicarious experiences that alter efficacy beliefs through transmission of competencies and comparison with attainments of others; verbal persuasive and allied types of social influences that one possesses certain capabilities; and physiological and affective states from which people partly judge their capableness, strength, and vulnerability to dysfunction" (Bandura,1997, p79).
Drawing on the work Csikszentmihalyi (1990) suggest that for ELLs there are critical experiences that either support or hinder language acquisition. This experiences relate to the notion of "flow" where complete absorption in the task at hand is accompanied by a feeling that time itself is suspended and provide moments where one might say that there are "in the groove", "on a high" or "on auto".



CONCLUSION

The authors propose that these three perspectives can serve to revitalize the dialogue around language acquisition and the ethical responsibility of educators to deliver learning experiences that support ELL linguistic efficacy and subsequently their access and success in attaining desired educational outcomes. The authors relate this to closely current theory and practices in language learning that see educators adopting TPRS to support ELLs. It is this understanding that both as non-native English speakers discuss the phenomenon to TPRS as a way of support ELL to develop linguistic efficacy.

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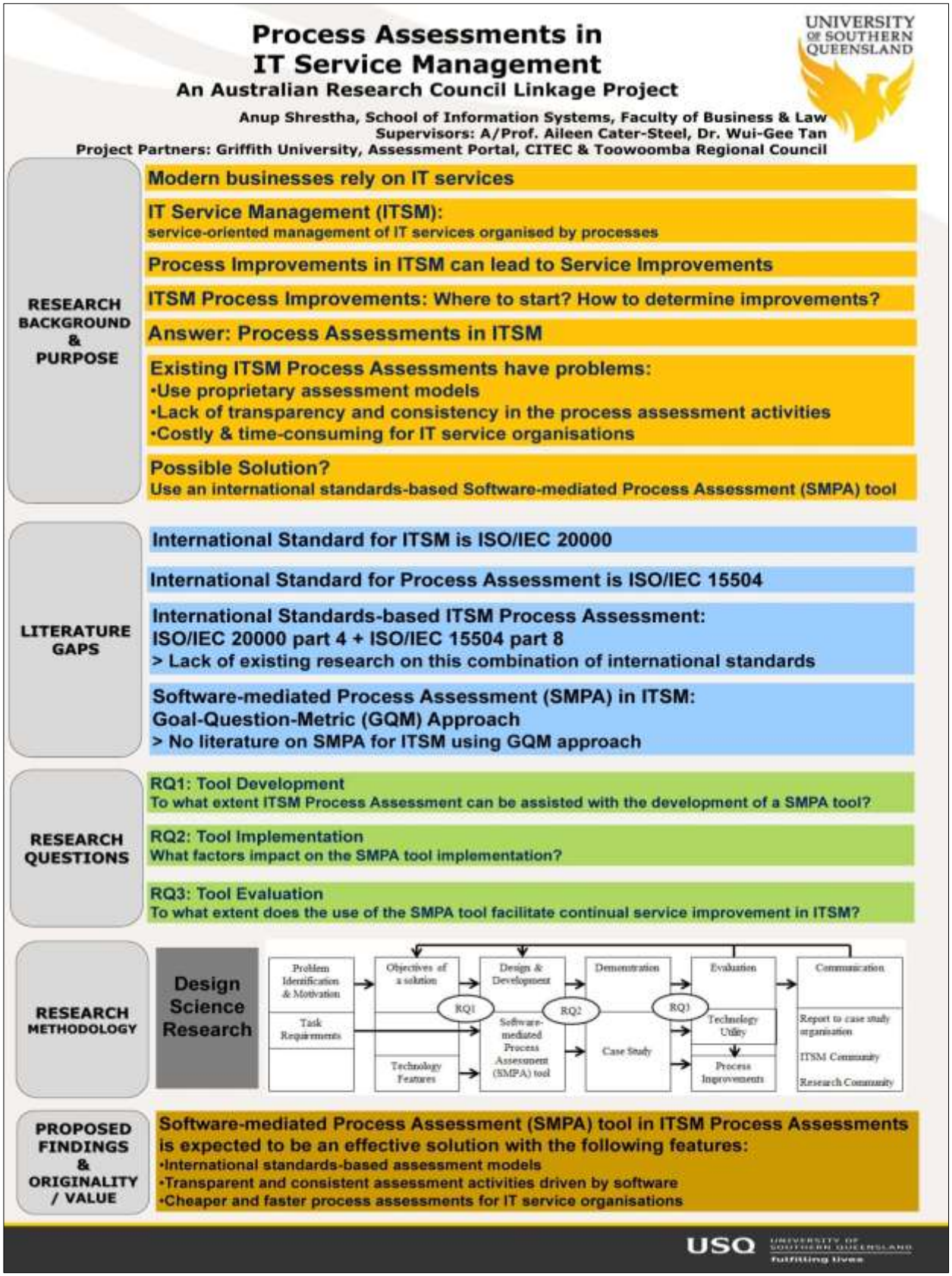
Process Assessments in IT service management

Researcher/s: Anup Shrestha



Willingness to adopt e-procurement to reduce corruption: results of the PLS path modelling

Researcher/s: Arjun Neupane, Jeffrey Soar, Jianming Yong and Kishor Vaidya

Willingness to Adopt e-Procurement to Reduce Corruption: Results of the PLS Path Modelling

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OBJECTIVE

Evaluate the potential of public e-procurement technology on the perception of the government officer's in relation to intent to adopt e-procurement to reduce corruption in public procurement.

INTRODUCTION

Electronic procurement is use of information and communication technology such as internet or web based or any inter organizational information system used by government institutions in conducting procurement activities (work, goods, and services) in order to improve efficiency, transparency, and accountability in wider public sector (Davila, Gupta & Palmer 2003; Leipold et al. 2004; Vaidya 2007).

Corruption is a serious problems and at more alarming stage especially for developing countries actively hinders their progress (Raymond 2008).

Research Model

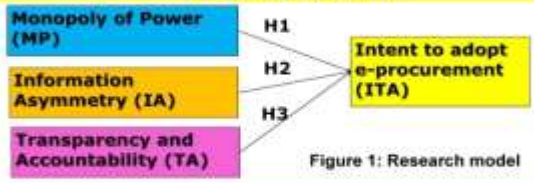

Figure 1: Research model

METHODOLOGY

Study employed the positivist paradigm to intent to adopt public e-procurement technology in government and to explore the potential of the technology to reduce corruption in government procurement.

Data collection

- The population was drawn from the government departments of Nepal.
- Study were invited from seven government departments due to they have already practise the system.
- The research participants included government officers who were involved in procurement and administration sections including joint secretary, director, senior divisional engineers, computer officer, and IT manger.
- Forty six government officers from seven government departments were selected to complete the field questionnaire survey (Convenience sampling approach).
- All variables coded on five point likert scale with ranging "Strongly Disagree" to "Strongly Disagree".

DATA ANALYSIS

Data was analysed quantitatively using statistical tools Partial Least Square (PLS)- SmartPLS 2.0.

Variables	Average of Variance Extracted (AVE)	Composite Reliability	Cronbanch Alpha
IA	0.477	0.810	0.713
MP	0.557	0.880	0.883
TA	0.624	0.890	0.849
ITA	0.544	0.903	0.881

Table 1: Reliability and validity of construct

RESULTS

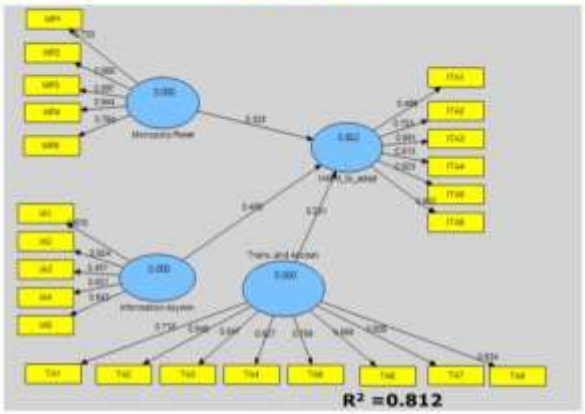

Figure 2: PLS Structural Equation Model

Hypothesis	Path coefficient value	t-value	Supported?
H1: Monopoly Power---->Intent to adopt	0.328	2.767	Yes
H2: Information Asymmetry---->Intent to adopt	0.459	3.374	Yes
H3: Transparency and accountability---->Intent to adopt	0.231	2.492	Yes

Table 2: Path Coefficient (intent to adopt e-procurement)

DISCUSSION

- Set out to analyse the willingness to adopt e-procurement for reducing the corruption on the perceptions of the government officers.
- Study contributes to the existing literature on the perceived benefits of the public e-procurement by combining the different construct into a single research model.
- Principal-Agent theory applied as a core theory in relation between government and bidders.
- Result suggests that monopoly of power, information asymmetry, and transparency and accountability are antecedent's attitude towards intent to adopt e-procurement.
- All variables were positively significant to the dependent variable intent to adopt e-procurement.

CONCLUSION

- Academically study developed a research model based on the existing Principal-Agent theory.
- Model demonstrated the relationship among the anti-corruption factors with intent to adopt e-procurement.
- A glance at the model provided reveals the opportunities to access the impacts of public e-procurement perceived benefits likely to reduce the chances of the corruption in public procurement.
- The practitioner point of view, it provides for better understanding of the potential of public e-procurement, as well as impetus to promote and priorities public e-procurement as an anti-corruption agenda and the strength of use of technologies to procurement reforms.
- This study demonstrates the interesting features of the potential of public e-procurement in reducing corruption in public procurement processes.

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The impact of a sport celebrity transgression on the sport celebrity brand image and their associated sponsors and sport

Researcher/s: Anne-Marie Sassenberg, A/Prof Jane Summers, Dr Melissa Johnson Morgan and Professor Marie Kavanagh

The Impact of a Sport Celebrity Transgression on the Sport Celebrity Brand Image and their associated Sponsors and Sport

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Faculty of Business and Law University of Southern Queensland • Springfield• Queensland • Australia

INTRODUCTION

Sponsorship worldwide spending increased to US$51 billion in 2012, and is expected to increase by 4.2% to US$53.3 billion in 2013 (IEG). Sport sponsorship represents 71% of all categories of sponsorship spending (Clow & Baack 2012). Within sport sponsorship activity the sponsors rely increasingly on the association with the sport celebrity brand image to increase brand equity (Spy, Pappu & Cornwell 2011). Celebrities are entering sponsorship with an already attained brand image (Erfgen 2011). During celebrity sponsorship the sport celebrity brand image transfers to the sponsor's image and causes an increase in the sponsor's image (Miller & Laczniak 2011). However, it is not clear, how a Sport Celebrity Transgression impacts on the Sport Celebrity Brand Image and their associated Sponsors and Sport, through the process of Brand Image Transfer.

Brand Image Transfer

Brand image transfer is the main objective of the sponsorship activity (Cornwell 2008). During brand image transfer the celebrity image transfers to the sponsor's image in order to enhance the sponsor's image (Gwinner & Eaton 1999; Smith 2004).

According to branding literature, when the sport celebrity brand image matches the sponsor's image, it results in a more effective sponsorship (Gwinner et al 2009). Sponsors thus align their image with certain aspects of the sport celebrity brand image. However, when a sport celebrity transgression occurs it is not clear how the transgression may impact on the sport celebrity brand image. It is further not known how the transgression may impact on the match-up between the sport celebrity brand image and their sponsor's image. In order to fill this gap in literature, this study investigates the following research question:

"What is the impact of a sport celebrity transgression on the sport celebrity brand image and their associated sponsors and sport?"

METHODOLOGY

The research programme consists of three stages:
Stage 1: Four focus groups
Stage 2: Secondary Online Data Collection
Stage 3: Presentation of findings to a panel of experts

Data analysis: Content analysis

Proposed Propositions

P1: A sport celebrity transgression causes consumers to reconsider the sport celebrity brand image from a priori state.
P2: The characteristics of the sport celebrity transgression will impact on consumers' perceptions of the sport celebrity brand image.
P3: When a sport celebrity transgression causes consumers to reconsider the sport celebrity's brand image negatively, there can be a flow-on effect on the associated sponsors.
P4: When a sport celebrity transgression causes consumers to reconsider the sport celebrity's brand image negatively, there can be a flow-on effect on the associated sport.

Sport Celebrity Transgressions

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The new frontier: A social ecological exploration of factors impacting on parental support of the active play of young children with the micro-environment of the family home

Researcher/s: Dr Alice Brown

The new frontier: A social ecological exploration of factors impacting on parental support for the active play of young children within the micro-environment of the family home

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INTRODUCTION

"And so she forges towards the new frontier, although confident she steps tentatively for little does she know what is to become of her" (Brown, 2008 , p.152).

Interventions and programs for improving the health of young children should involve family and parents, yet there is still a paucity of qualitative research that investigates the influence of parental values, practices and behaviours on active, physical play in young children. Till recently health and physical activity research has been trapped in a discourse dominated by positivists where measurable variables were used to define and understand phenomena of health.

This research was motivated by the desire to understand active play environments supported within the home and explore the pervasive influence that multiple contexts exert on parents' understandings of and practices for encouraging or constraining these environments.

Three key research questions were formulated to guide this investigation.

Question 1: How do parents support the active play experiences, and environments of their children (birth to four)?

Question 2: How do multiple environments and social ecological factors influence parental behaviours, values and practices for supporting active play with their young children?

Question 3: How do ecological factors influence the way that determinants are skewed to become barriers or enablers of parental support for active play experiences and environments?

CONCEPTUAL FRAMEWORK

The Parental and Micro-Environmental Model (PMEM) nests the parent and child together within the micro-environment of the family home. This aids in better understanding parents and the range of factors that impact on the active play of the child. The model also considers the child being influenced by parents, family and the multiple environments, whilst also accounting for the impact that the child has on individuals and environments.

METHODOLOGY

- Intrinsic and instrumental case study provided an opportunity to gain a contextual understanding of the idiosyncratic experiences and motivations of three families with at least one child four years or under.
- Qualitative data collection methods assisted with the ethical engagement of parents and included listening to the stories of participants using semi-structured interviews, observing their contexts and environments and critically reflecting on these data.
- The 'CHE' concepts of Connectivity, Humanness and Empathy, were employed to help break down initial communication barriers as well as build connections, trust and clarity of expectations with participants. were employed for engaging with families.
- The PMEM model that extended on social ecological theory was adopted to analyse and help shed light on how a combination of

FINDINGS

Findings expand on current understandings about the idiosyncratic nature of parents and families and highlight the pervasiveness of factors that impact on their efforts to support the active play experiences of young children.

A range of factors that sit both inside and outside the micro-environment of the family home can skew determinants into becoming either a barrier or an enabler, depending on context.

We can only truly understand individuals within these places by appreciating their context located within multiple environments and the wider social milieu.

Future research endeavours should seek to better understand the experiences and perspectives of children and parents in this legitimate space. A yet untapped resource that in many respects could still be defined as the 'New Frontier'.

Significant grants and associated research

2008 - $150,000 - **Alice Brown** (part of team with Chief Researcher Robert Eley). Investigating the stakeholders, opportunities and key entry points for increasing physical activity participation in rural communities in Queensland (YIPD 00.01/10).

2007 - $16,500 – Chief Researcher - **Alice Brown**, (Principal Investigator Malcolm Lewis from Queensland Health). South Burnett - Early movement and stimulation project. Funding Body: Graham House (Research Consultancy)

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Conference Paper/Presentation

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Offal cattle demand in Indonesia and Australia's trade prospects: a case study for Makassar

Researcher/s: Vidyahwati Tenrisanna, Mafiz Rahman and Rasheda Khanam

Offal cattle demand in Indonesia and Australia's trade prospects: A case study for Makassar

Vidyahwati Tenrisanna, Mafiz Rahman and Rasheda Khanam • Faculty of Business and Law
University of Southern Queensland • Toowoomba • Queensland • Australia

INTRODUCTION

This study will provide empirical evidence about offal cattle demand patterns in Makassar, South Sulawesi Province, Indonesia. The study of Saleh (2011) found that consumers in Makassar are gradually shifting away from local offal to imported offal cattle because of the higher price of local offal and limited local production. Due to highly demand for beef offal, there are around 300 traditional food stalls that need 16 tons of offal per day in Makassar while only one ton could be supplied by slaughter houses in Makassar (Republika, 2012).

METHODOLOGY

Major socio-economic and demographic factors responsible for the changing market shares between local offal and imported offal will be identified by using the linear approximate almost ideal demand system (LA/AIDS) model (Deaton and Muellbauer 1980). Next, to test for structural changes in consumers' willingness to pay (WTP) and to provide empirical measures of the demand for imported offal, two simulation analyses will be performed : (1) consumers' WTP for Australian offal; and (2) consumers' WTP for free trade (no import quotas) with the LA/AIDS demand model.

Consumer Willingness to Pay for Australian offal and free trade

- **Consumer WTP for Australian offal**
  This study will also estimate Indonesian consumers' willingness to pay (WTP) for offal based on the product quality assurances, affordability and accessibility of Australian offal with the LA/AIDS demand model.
- **Consumer WTP for free trade**
  The Indonesian government current policy on beef trade to decrease the import quota has reduced the market share for offal in Makassar, Indonesia. Finally, another simulation analysis will be performed by estimating offal demand for free trade or no import quotas scenario with the LA/AIDS demand model.

Offal cattle consumption, supply and trade in Makassar, Indonesia

In Makassar, offal cattle are obtained from local cattle producers and imported beef offal. Local government has decided to import offal on an average of 15 tons/day (Saleh 2011). Especially in Makassar, South Sulawesi province, beef offal is one of the highly demanded products. The community of South Sulawesi has a traditional dish called *Coto Makassar* that use beef offal as the main ingredient. Indonesia is a key market for Australian offal with trade valued at $22.7 million in 2010 to 2011 (Department of Agriculture Fisheries and Forestry, 2012). Global market opportunities for beef offal in Makassar will continue to go up due to limited local production, local food culture and the increase in income, population growth and urbanization.

Beef offal seller in a traditional market in Makassar, Indonesia
Source: http://www.shnews.co/detile-5441-harga-

CONCLUSION

The issue of offal demand and supply is an emerging issue in Indonesia; so it needs greater attention. Limited products in the market have increased the beef offal prices; and some illegal products have been found in the traditional markets recently. Therefore, the future research should be directed in this regard. The success of the Australian beef industry would be a great opportunity for Indonesia and Australia to gain trade benefits from beef products and live cattle supply chains.

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Exploring the divergence of project management practice from its theoretical representations in project management maturity models

Researcher/s: Terry McKenna

Exploring the divergence of project management practice from its theoretical representations in Project Management Maturity Models

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Research Motivation

Organisations make significant investment in what are perceived as "capabilities" to improve their project management (PM) outcomes.

However, research suggests a significant divergence between formal approaches to project management and the day-to-day practices of project managers. Drivers for this divergence have not been clearly identified and addressed in the literature, particularly using a social/cultural evolutionary framework which considers how both practice and theory evolve over time.

Further inquiry is required into the relationship between the organisations' pursuit of PM "methodologies" and resultant practices, and how these co-evolve.

Research Question

This inquiry is being encapsulated in a Research Question (RQ):

What are the drivers that create divergent evolutionary paths between project-management-as-practice and the various formal project management representations (such as methodologies, maturity models and bodies of knowledge)?

More succinctly, the proposed research is framed within the title:

"Exploring the divergence of project management practice from its theoretical representations in Project Management Maturity Models".

Literature Review

Given the nature of the research question, a wide net has had to be cast to identify relevant literature. A framework (Fig. 1) was used to identify and navigate the literature research:

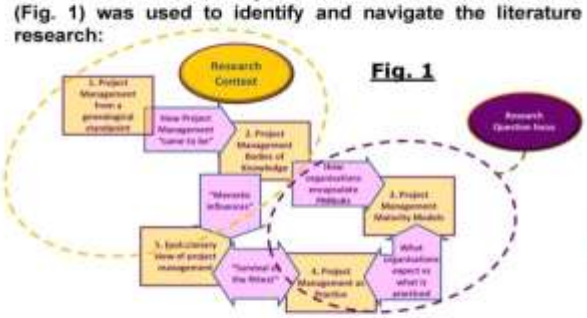


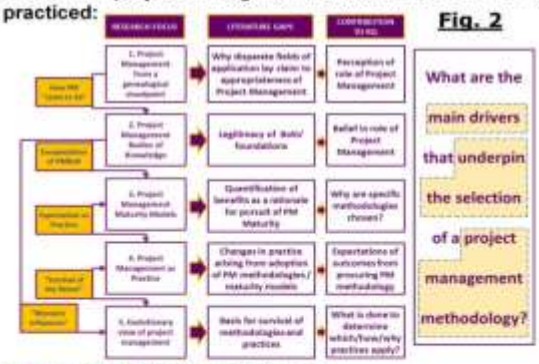
Fig. 1

To date, the literature review on the one hints at the importance of understanding the relationship; but on the other does not offer any conclusions which would discourage further inquiry.

Literature gaps

Identification of gaps in the literature were determined by evaluating whether firm conclusions could be drawn between how project management is formalised vs. how it is practiced:

Fig. 2

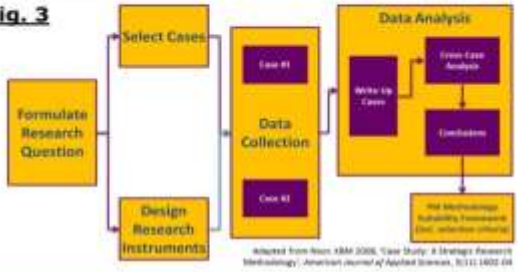


Research Methodology

The proposed research endeavours to add to understanding relationships between project management as practiced and its formal representations (e.g. methodologies, maturity models): looking at how practice changes over time, and under what influences, in contrast to (or in unison with) its more formal representations.

Focussing upon practice promotes consideration of a case study / ethnographic approach:

Fig. 3



RESEARCH CONTRIBUTIONS

The proposed research will strive to increase our understanding of:

- whether investment in achieving project management maturity actually influences practice; *and*
- what factors which influence organisations' pursuit of project management actually have a bearing upon how its practice.

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Key factors facilitating and inhibiting the adoption of high speed broadband services in rural and regional Australia

Researcher/s: Sanjib Tiwari

key factors facilitating and inhibiting the adoption of the high speed broadband services in rural and regional Australia

Sanjib Tiwari (PhD Research student) Supervisory Team - Dr. Michael Lane, Associate Professor Margee Hume • School of Information Systems and School of Management and Marketing - Faculty of Business and law • University of Southern Queensland • Queensland • Australia

Project Summary

In the technology adoption environment, individuals' concern for adoption of broadband technology plays a critical role in determining their intention to use. Understanding variables such as perceived usefulness, ease of use, social influence, self-efficacy, perceived cost, image and social capital relationship has important implications for adopting high speed broadband network in rural and regional Australia.

Despite much research in this area, an overarching picture of the relationship between behavioural intention to adopt broadband and actual adoption behavioural is yet to be drawn in rural and regional area communities (Hill, Burgan & Troshani 2011).

Based on the review on empirical studies of Brown & Venkatesh (2005), Irani, Dwivedi & Williams (2008) and Hill, Burgan & Troshani (2011) this research is grounded in the conceptualization of the perceived usefulness, perceived ease of use, self-efficacy, social influence, perceived cost, image and social capital to actual adoption of the broadband in rural and regional area to sustainable development.

Research Question

what are key factors that determine the successful adoption of high-speed broadband services in rural and regional Australia?

Methodology

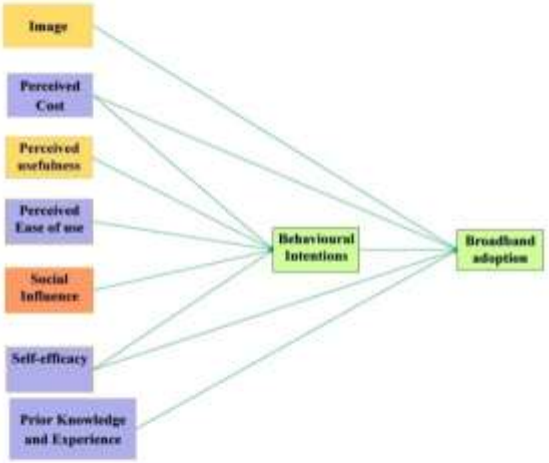
The research project will use a mixed research design of qualitative and quantitative methodologies in two main research phases.

- The first phase is primarily qualitative in nature. Interviews will be conducted to determine whether the key factors drawn from the literature are good indicators of household intention to adopt high-speed broadband services
- The second phase which is a quantitative survey to collect data about household adoption of high-speed broadband from Western Down Regional Council in SE Queensland.

People Involved

- Rural and regional household will participate in both research phases.
- We will conduct this study in Western Down Regional Council Shire in SE Queensland focusing on household adoption of High speed Broadband Services

Research Framework



Project Expected Contributions

An adoption of Technology Acceptance Model (TAM) (Davis 1989) which is extended by two dimension of social capital to the context of high-speed broadband in the rural and regional area will provide the theoretical foundation for this research project.

This research extends the existing body of knowledge through the following contributions:

- The proposed high speed broadband adoption model for households in rural and regional Australia can provide a mechanism for enhancing sustainable economic and social development by facilitating the adoption of high-speed broad band to grow local socioeconomic activity.
- Confirmation of the adoption model with respect to rural and regional communities it can help assist in building effective telecommunication policy for rural and regional Australia
- Private industry will understand necessary adoption strategy to grow their market in rural and regional area

Research Team

Sanjib Tiwari

Dr Michael Lane, A/Prof Margee Hume (Supervisory team)

Dr Khorshed Alam, Prof Julie Cotter, Prof Lorelle Burton

Dr Jianming Yong and Dr Md Shahiduzzaman

Acknowledgement:
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Optimum embodied energy for bioclimatic design "PeersLCA Tool"

Researcher/s: Sattar Sattary, Dr David Thorpe and Ian Craig

OPTIMUM EMBODIED ENERGY FOR BIOCLIMATIC DESIGN

"PeersLCA Tool"

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POTENTIAL EMBODIED ENERGY REPLACED AND SAVED IN THE LIFE CYCLE ASSESSMENT OF BUILDING

INTRODUCTION

Greenhouse gas emissions associated with the buildings in which we live and work are a major contributor to global warming and climate change. Around the world, buildings are responsible for between 40 and 50 percent of global energy consumption (Taylor Oppenheim Architects, Lincolne Scott Australia et al. 2005)

Much of this impact is being caused by inadequate attention being given to the principles of sustainable design and a continuing acceptance by many building owners, designers and constructors of unnecessary costs and overheads in the form of energy inefficiency. In the future the progressive pricing of carbon will drive energy efficiency and give impetus to design innovation for reducing energy and carbon impacts (UNEP SBCI Sustainable Buildings & Climate Initiative 2010).

EMBODIED ENERGY OF BUILDING MATERIALS AND ELEMENTS

Embodied energy is the energy consumed by all of the processes associated with the production of a building, from the Mining and Processing of natural resources to manufacturing, Transport and Product delivery' (Your Home Technical Guide 2010).

'Embodied energy is the energy consumed in all activities necessary to support a process. It comprises a Direct and an Indirect component, Baird and Chan, (Treloar 1998).

BIOCLIMATIC PRINCIPLES

"*The design process that brings together disciplines of human physiology, climatology and building physics*" Olgyay.

Olgyay regarded such design as 'comprising the analysis of site, exposure, climate, orientation, topographical factors, local constraints and the availability of natural resources and ecologically sustainable forms of energy considered in relation to the duration and intensity of their use'.

Three area that embodied energy can be saved, reduced and replaced

1. Building Materials consumed Energy	2. Implementation Energy	3. Transportation Energy
Saved and **reduced** energy by: •Using Recycled components •Reprocessing materials •Reassembling the elements •Reusing buildings •Reusing spaces •Reusing materials •Decreasing waste •De-constructible building •Using recyclable materials •Using fully recyclable materials	**Saved**, **reduced** energy and **replaced** renewable energy in: + Improving implementation and assembling processes •**Replaced** renewable energy in construction and deconstruction processes + Improving deconstruction processes	**Saved**, **reduced** energy and **replaced** renewable energy by: + Improve transportation of production, construction and demolition processes + **Replaced** renewable energy in transportation of production, construction and demolition processes

Table 2: Measurable indicators PeersLCA assessment of building

Life Cycle Stages of building	Stage I Pre-Construction	Stage II Construction	Stage III Post-Construction	Stage IV Demolition
Bioclimatic criteria	Produce, reprocess, assemble and reassemble	Construct, retrofit and reuse	Repair, Maintain , refurbish and retrofit	Demolish, recycle and deconstruct
Measurable energy that can be reduced and saved in **Building Materials and Elements**	-**Saved** and **reduced** embodied energy by using Recycled, Reprocessed, reassembled components, materials and elements	-**Saved** and **reduced** embodied energy by: -Reused buildings -Reused spaces -Reused materials and elements -Refreshed materials -Repaired materials -Recycled material -Material with recycled content -Using fully recyclable material -Saved waste from low-waste system -Recycled materials from this waste -Saved materials from modifiable system -Saved embodied energy from appropriate life span of materials	-**Saved** and **reduced** embodied energy by: -Reused buildings -Reused Material -Reconditioned, repaired and retrofitted by (reusing, refresh, repair, recycled material) -Recycled material from the waste	-**Saved** and **reduced** embodied energy by: -De-constructible element and building materials -Recyclable materials -Fully Recyclable materials
Measurable energy that can be reduced and saved in **Implementation**	-**Saved** and **reduced** energy use in production processes -**Replaced** renewable energy in production processes	-**Saved** and **reduced** energy use by improving construction processes -Reusing building, spaces, elements materials ... processes -**Replaced** renewable energy in construction processes	-**Saved** and **reduced** energy use in Repair, Maintain, refurbish and retrofit processes -**Replaced** renewable energy in Repair, Maintain, refurbish and retrofit processes	-**Saved** and **reduced** energy use in de-construction and demolition processes -**Replaced** renewable energy in de-construction and demolition processes
Measurable energy that can be replaced and saved in **Transportation**	-**Saved**, **reduced** the energy use in transportation of production process -**Replaced** renewable energy in transportation of materials and elements	-**Saved** and **reduced** energy use in transportation of construction processes -Reusing building, spaces, elements materials ... processes -**Replaced** renewable energy in transportation of construction processes -Reusing building, spaces, elements materials ... processes	-**Saved** and **reduced** energy use in transportation of production processes, -Reusing building, spaces, elements materials ... processes -**Replaced** renewable energy in transportation of production processes -Reusing building, spaces, elements materials ... processes	-**Saved** and **reduced** energy use in transportation for de-construction and demolition processes -**Replaced** renewable energy in transportation for de-construction and demolition processes

Friendly Beaches Lodge
Construction System: Timber floor, timber walls, steel roofing

Embodied Energy MJ/m² of floor area	Case study 6	Basic	Percentage of decrease or increase
Floor/s	72 Kg/ m²	236 Kg/ m²	164 Kg/ m² = %69 less
External walls	32 Kg/ m²	188 Kg/ m²	156 Kg/ m²= %82 less
Roof/ceiling	230 Kg/ m²	240 Kg/ m²	10 Kg/ m²= %04.1less
Total	334 Kg/ m²	664 Kg/ m²	330 Kg/ m²= %49 less

Table 6: Comparing the case study 6 to the basic embodied energy

Olympic Stadium , 2012 London

1/10of the amount of steel used to construct Beijing

The amount of carbon output of the stadium is an eighth of the Beijing.

The thing that makes up almost 50 percent is the embodied carbon in construction of all the infrastructure.

Olympic Velodrome

20% recycled content by value, and 25% recycled content by volume of aggregate used. Carbon emissions15% lower than original design.

Velodrome is one of the iconic and most sustainable buildings of the Olympic.

CONCLUSION

" Peers LCA Tool" will enable professional people (governmental and private organizations, architects, engineers and contractors) to identify and select the most optimized embodied energy materials for their projects through the whole Life Cycle Assessment (LCA) of Building considering:

1.Reduced and saved energy in production and preassembling of Materials and Elements

2.Replaced renewable energy, saved and reduced energy in Implementation

3. Replaced renewable energy, saved and reduced energy in Transportation

(Using, AutoCAD, Revit and BIM Software)

'Within and against the grain of policy': Performing boundary work in an alternative schooling context

Researcher/s: Drs David Cleaver and Stewart Riddle

'Within and against the grain of policy': Performing boundary work in an alternative schooling context

Stewart Riddle, David Cleaver • Faculty of Education
University of Southern Queensland • Springfield • Queensland • Australia

Introduction

Many counties, including Australia, are currently experiencing an era of neoliberal political agendas that result in an increasingly narrowed focus on schooling outcomes as measured by standardised testing regimes such as the Programme for International Student Assessment (PISA), leading "to a pedagogical impoverishment where anxious teachers shift toward transmission pedagogies tightly orientated toward test items" (Thomson, Lingard, & Wrigley, 2011, p. 6). For example, in Australia, the federal government's *Education Revolution* has seen the advent of a national curriculum and high-stakes testing regime in literacy and numeracy, along with an alarming trend towards media-constructed league tables and the supposed increased accountability of schools and schooling systems measured on particular indices derived from performance in the national testing regime. In such a homogenising educational-political context it becomes important to recognise the rich learning opportunities that are made available to students in alternative schooling models.

In this study, the rich lived experiences of students and teachers working at one alternative schooling site were documented over the period of a year. *Harmony High* is an alternative school in Brisbane, Australia, with a central focus on preparing students for a career in the music industry. While the school works with state-mandated curriculum, assessment and reporting requirements for accreditation purposes, they are able to "work within and against the grain of policy simultaneously" (Thomson, et al., 2011, p. 4) in order to serve the particular interests and learning needs of students.

Research method

Data were collected through ongoing conversations with students and teachers. These data were then (re)storied using a narrative inquiry approach borrowing from arts-based education research (Barone, 2007; Barone & Eisner, 2006), feminist poststructuralism (Davies, 1994; MacLure, 2006; St. Pierre, 2000; Weedon, 1987) and narrative research in education (Barone, 2007; Connelly & Clandinin, 1990; Gallagher, 2011; Holley & Colyar, 2009; Riessman, 2008; Tamboukou, 2008) that (re)tells and (re)presents stories as lived experience, shared through language and voice, where attention to subjectivity, power and discourse require "particular kinds of wakefulness" (Clandinin, Pushor, & Orr, 2007, p. 21) in order to "act as a methodological 'release point' to invite the unsaid, the masked, the contested, the contradictory" (Gallagher, 2011, p. 51).

Discussion

There were three major themes arising from the narratives generated for this study. These included: community and culture; curriculum connectedness; and commitment. A strong sense of community exists at Harmony High that is due in large part to the buy-in of students and teachers to the rich culture of the school that goes beyond the four walls of the classroom and the standard school day. A number of co-curricular experiences are made available to students that involve large scale participation and involvement of the school community. Through carefully considered planning and implementation of engaging and real-life learning experiences, students at Harmony High enjoy a curriculum that is connected to their life worlds and interests. Finally, a high level of investment into the commitment to schooling is apparent at Harmony High from both teachers and students, a commitment seldom found in mainstream schooling. An overwhelming sense of investment in the school is apparent through the shared narratives of teachers and students at Harmony High.

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Trade-off between community foregone benefits and carbon benefits in REDD+community forests in Nepal

Researcher/s: Shiva Shankar Pandey, Geoff Cockfield and Tek Narayan Maraseni

Trade-off between community foregone benefits and carbon benefits in REDD+ community forests in Nepal

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INTRODUCTION

- Need for meaningful actions to reduce CO_2 emissions from forestry sector in developing countries is agreed in COP 13 (Angelsen et al. 2012).
- Payment mechanism for reducing emissions from deforestation and forest degradation, conservation, sustainable use and enhancement of the carbon stock in the forests (REDD+) in developing countries is an option to contribute to greenhouse gas reduction targets (Bond et al. 2009).
- Safe guarding social aspect of local and indigenous communities in REDD+ projects is an important issue (Corbera & Schroeder 2011).
- Trade of between community's forgone benefits of forests and carbon benefits is not well understood.

OBJECTIVE

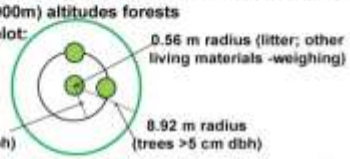
- Estimate trade-off between carbon benefits and community benefits in REDD+ projects in community forestry

METHODOLOGY

Data collection

- Carbon pool change: Three years data collected from 490 composite plots in 105 REDD+ community forests and analysed
  - 295 plots in dense (>70%) and 95 in sparse (<70%) canopy
  - 289 plots in lower (<1000m), 94 plots in middle (1000-2000m) and 107 plots in higher (>2000m) altitudes forests

Model of composite plot:



- Changes in community benefits from forests and contribution to forests collected from group discussion and written documents of all 105 community forest groups

Data analysis

- Carbon pool:
  - Tree- Allometric equation (AGTB= $0.0509 * \rho D^2 H$) Chave et al. (2005).
  - Sapling- National biomass table (Tamrakar, 2000) for green biomass and converted to dry biomass multiplying by species-wise dry to green weight ratio taken from literatures.
  - Below ground tree and sapling biomass
  - Other living biomass- 100 g sample from each plot was sent to a lab for dry weight estimation in 2010. Dry to wet ratio was estimated and used to estimate biomass in all years.
  - Litter- Similar methods as other living material
  - Total and per hectare carbon change in each CF
  - Benefit and contribution: Difference (in average annual basis) before REDD+ and during REDD+ is estimated
- Trade-off: Difference in annual benefits gain and contribution in forestry activities in each CFs, annual changes in carbon stock and total community cost to increase per unit carbon in CFs

Study sites

RESULTS

Average carbon stock change (t/ha) in community forests

Location of CFs	Average carbon stock changes (t/ha)			
	2010-2011	2011-2012	2010-2012	Annual
<1000m (N=45)	7.8	2.4	10.2	5.1
1000-2000m (N=41)	7.4	6.6	14.0	7.0
>2000m (N=19)	5.3	0.5	5.8	2.9
Total (N=105)	7.2	3.7	10.9	5.4

Trade-off between foregone benefits and carbon enhancement at CFUGs

Altitudes	Total forests (ha)	Lost benefit (NRs/ha)	Contribution (NRs/ha)	Total cost (NRs/ha)	Annual C gain (t/ha)	Cost (NRs/t)	Cost (USD*/t)
<1000m (N=45)	37260	13001.4	377.1	13378.6	5.1	2623	29.8
1000-2000m (N=41)	2395.8	4346.9	505.6	4854.5	7.0	694	7.8
>2000m (N=19)	4143.7	1329.1	222.2	1551.4	2.9	535	6.1
Total (N=105)	10265.5	6270.5	344.6	6615.1	5.4	1225	13.9

*Note: * 1 USD=88 NRs*

CONCLUSION

- Overall biomass/carbon stock is increasing in community forests. Biomass/carbon stock increment is higher in altitudes 1000-2000m and lowest in altitudes >2000m.
- Communities have changed their existing forest use and forest management practices for REDD+. These changed behaviours cost communities. Communities managing forests <1000m altitudes have higher trade off or sacrificed benefits to generate one ton of carbon whereas it is one fourth lowest in >2000m and 1000-2000m altitudes.
- To make cost effective and long term benefit of communities, these sacrificed benefits should be compensated from REDD+. The REDD+ project developer and facilitating organization need to consider the facts that community's cost is different in each CFs and higher in lower altitudes while developing benefit sharing mechanism al local level.

Reference: 1) Angelsen, A, Brockhaus, M, Sunderlin, WD & Verchot, LV. 2012. Analysing REDD+: Challenges and choices. Cifor; 2) Bond, I, Grieg-Gran, M, Wertz-Kanounnikoff, S, Hazlewood, P, Wunder, S. & Angensel, A, 2009. Incentives to sustain forest ecosystem services: A review and lessons for REDD. International Institute for Environment and Development, London, UK; 3) Chave, J, Andalo, C, Brown, S, Cairns, M, Chambers, J, Eamus, D, Fölster, H, Fromard, F, Higuchi, N & Kira, T. 2005.Tree allometry and improved estimation of carbon stocks and balance in tropical forests, Oecologia 145 (1), 87-99; 4) Corbera, E & Schroeder, H 2011. Governing and implementing REDD+, Environmental Science & Policy, vol. 14, no. 2, pp. 89-99

Poster presented in the Research Colloquia and Showcase 12-13th June 2013, Springfield Campus

Innovation in higher order construction contracts

Researcher/s: Sam Fernando

Innovation in higher order construction contracts

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INTRODUCTION

The construction industry is one of the crucial sectors of economic activity in a country. Any productivity improvement in this industry makes a significant contribution to the national economy. It is widely known that the most effective productivity driver is innovation. However, research also shows that the construction industry has not benefitted much from innovation as compared to other industries. Any new research to use innovation as a tool to enhance outcomes from the construction industry is, therefore, of vital benefit to the industry as well as to the prosperity of nations.

Innovation in relation to a construction project is to harness good ideas that will bring substantial benefits. Innovation is not only a way of improving productivity in a construction contract– it has the potential to enhance all the project outcomes. Clients are demanding more from construction projects nowadays and innovation is the answer to meet these demands. Many predict that innovation will soon become the fourth dimension in project management after cost, time and quality.

Innovation in higher order construction contracts project

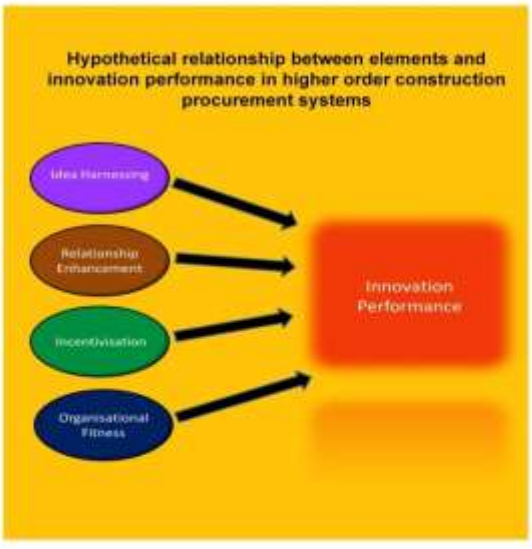
Aim is to analyse innovation in higher order construction procurement systems (these are procurement systems such as alliance contracts with improvements made to traditional contracts to enhance innovation outcomes) to develop a model/s that facilitate innovation.

Main tasks:

- Define the term "innovation" as applicable to higher order construction procurement systems
- Identify elements in stimulating and facilitating the innovation process in higher order construction procurement systems and analyse their collective performance
- identify a model/s with relevant elements that could better stimulate and facilitate the innovation process
- Identify ways of improving these elements for better performance, i.e. identification of best practice

Benefits from the research

- Possibility of developing new procurement systems in the future containing the model/s identified in the research to harness innovation in construction projects
- Model/s developed in the research will provide an 'easy-to-understand' list of requirements to foster innovation in construction projects that will benefit the whole construction industry
- Possibility of incorporating elements (in some form) in prevailing construction procurement systems thus improving current procurement systems
- Possibility of improving current work processes and practices used in construction contracts with further understanding of elements
- Possibility of combining project management and innovation in construction projects for the betterment of the industry.



NEXT STEPS

- Prepare a conceptual model using literature review and practitioner input
- Test the model using a survey among the practitioners in Australia and analysing the data collected
- Validate the model using the Delphi method
- Document research findings.

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An advanced systemic lesson learned model for project organisations

Researcher/s: Stephen Duffield

An advanced systemic lesson learned model for project organisations

Author: Stephen Duffield, Supervisors: Dr Jon Whitty, Dr Barrie Todhunter
School of Management and Marketing, Faculty of Business and Law
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1. Research Problem

A significant challenge for government and business project organisations is to ensure that lessons are learned and that mistakes of the past are not repeated. Both the knowledge and project management literature suggests that the lessons learned process in practice rarely happens, and when it does it fails to deliver the intended results. The motivation of this research is to propose and validate a conceptual model that will address this problem.

2. The literature

The literature highlights that the problem is not with identifying lessons, nor is it to a lesser extent, with the ability to store or share knowledge. But rather the problem appears to be that organisations are unable to apply or implement the lesson learned (knowledge) they have. They lack, anthropomorphising somewhat, an organisational central nervous system.

The literature presents many opinions, guides, models and methods , but little practical advice regarding workable processes that effectively enable the organisation to learn from past project experiences. Much of the literature re-enforces the point that people factors influence the success of the lessons learned process and that a just culture learning culture is critical to successful dissemination of lessons learned.

There are some successes in health care, nuclear power, rail and aviation. A common element in these organisations is the cultural practices for learning through safety.

3. The literature gaps

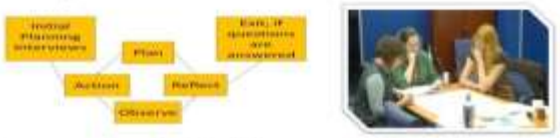
The literature does not make the connection between organisational learning and how naturally evolved complex adaptive systems (CAS) learn. Neither does it connect how CAS mechanisms have strong parallels with human organisations, or discuss how sectors within health care, nuclear power, rail and aviation already have utilised this CAS capacity to adapt and learn.

4. Research Proposal

The Syllk model (Fig.1) is grounded in the research literature. In line with CAS theory it represents the various organisational systems (in terms of elements) that collectively form the overall complex behaviour of the organisation. Conceptually it is adaptation of the Swiss cheese model of failure in safety systems. An initial study developed and validated the model with qualitative exploratory focus group research methods. The model will now be further tested within organisations using action research activities.

5. Methodology

Action research has been selected as the research strategy and participative inquiry will be used as the data collection methodology. Action research supports conducting research within a learning organisation and will benefit both the organisation and the project management body of knowledge.



The proposed method for this research will be multiple 'action research' cycles of the 4 stage process (plan, action, observe, reflect). Project Management participants will be sought from public Government Departments / Corporations and private commercial enterprises.

The Syllk model replaces Reason's Swiss cheese defence safety layers with the organisational elements of learning, culture, social, technology, process and infrastructure. The reverse relationships refers to the fact that the open holes (facilitators) in each element represent the various facilitators in each of those elements that need to be aligned to enable the effective dissemination and application of the identified lessons.

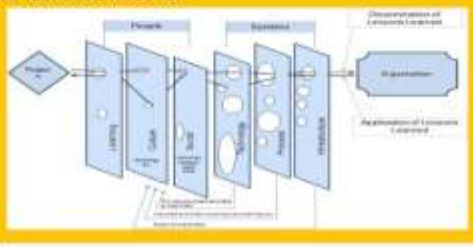


Fig.1

6. Preliminary Findings

The initial validating study found that by reconceptualising lessons learned, the Syllk model can influence the identification, dissemination and application of lessons learned. The alignment of the people and system elements has the potential to positively influences the success of an organisation's lessons learned processes.

The action research phase should establish that several variables of the model and their elements need to align to ensure organisational lessons are learned by means of projects. This research is expected to contribute to the global project management knowledge base and lessons learned practice by better understanding the significant learning, cultural, and social people factors.

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The role of broadband in bridging the digital divide and boosting productivity

Researcher/s: Mohammad Salahuddin and Khorshed Alam

THE ROLE OF BROADBAND IN BRIDGING THE DIGITAL DIVIDE AND BOOSTING PRODUCTIVITY GROWTH IN AUSTRALIA

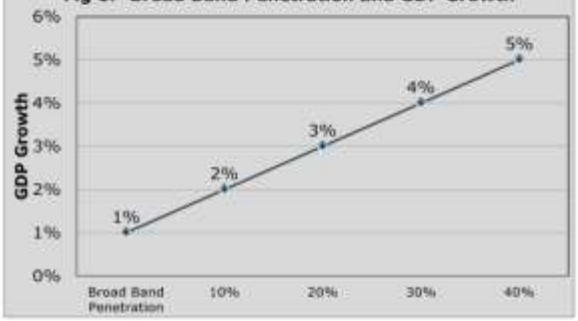
Mohammad Salahuddin and Khorshed Alam

University of Southern Queensland in partnership with the Australian National University and the University of South Australia. Supported by the Digital Futures (CRN) Project funded through the Australian Government's Collaborative Research Networks program

INTRODUCTION

- Internet activity in Australia has doubled over the last few years
- The total economic benefits from the internet is estimated to be worth $50 billion which is 3.6% of Australia's total GDP in 2011
- A 10% growth in broadband penetration is expected to contribute to 1% rise in GDP (Fig.1)
- Share of internet economy in GDP in 2011 is 3.6% (Fig. 2) and is expected to rise to 4.71% by 2016 if GDP increases by 7% (Fig. 3).
- Although a relatively wide diffusion of internet occurred in Australia, the overall rate of this diffusion is slow
- Digital divide still persists despite its recent decline
- The contribution of high speed broadband expansion towards economic performance is yet to be explored
- The role of broadband expansion in strengthening social inclusion and enhancing social capital formation is still largely untapped

Fig 1:- Broad Band Penetration and GDP Growth



MOTIVATION & GOALS

- Empirical evidence on the effect of broadband usage on economic performance is inconclusive.
- Literature investigating this relationship is relatively scarce
- Literature on digital divide in Australia is also inadequate
- Current policies to bridge the digital divide in Australia suffers from the lack of attention to addressing the demand side issues(economic and social) of digital divide
- The National Broadband Network project brings some opportunities as well as challenges
- Women are largely underclassed in terms of internet usage. Study on the contribution of internet usage towards women empowerment deserves special attention
- Social impacts on internet diffusion have every merit for further investigation

METHODOLOGY

- Both primary and secondary data will be used for the study
- To obtain primary data, sampling areas will be purposively chosen and stratified sampling method will be adopted to ensure representativeness of the population of broadband users
- Qualitative data will be coded and sorted after transcribing. Afterwards they will be summarized, interpreted and presented as narrative statements.
- Quantitative data will be analyzed using suitable econometric software such as STATA 12.
- The step by step conceptual research method will comprise of literature review, developing research questions and designing interview schedule and finally analyzing both primary and secondary data

Fig 2:- Share of Internet Economy to GDP in 2011

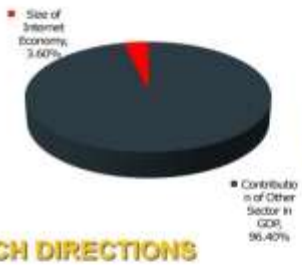
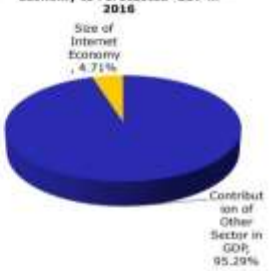


Fig 3:- Expected Share of Internet Economy to Forecasted GDP in 2016



EXPECTED OUTCOMES AND FUTURE RESEARCH DIRECTIONS

- Statistically significant relationship between broadband access and productivity/economic growth
- Broadband expansion strengthens social inclusion and boosts social capital
- Internet diffusion through broadband expansion will enhance economic activities at both regional and national level in Australia
- Broadband roll out is expected to narrow down digital divide
- More extensive study is required to assess the socio-economic implications of internet diffusion through broadband expansion
- Panel and cross-sectional studies encompassing social inclusion, digital divide and social capital formation may be undertaken
- Future studies should be more policy focused.
- The strengths and weaknesses in the current digital divide policy in Australia should be carefully assessed through empirical investigation

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A review of key enabling factors in construction industry productivity in Australia

Researcher/s: Rami Hughes and Dr David Thorpe

A Review of Key Enabling Factors in Construction Industry Productivity in Australia

Rami Hughes and Dr David Thorpe • Faculty of Engineering and Surveying
University of Southern Queensland • Toowoomba • Queensland • Australia

INTRODUCTION

The construction industry plays a major role in developing and achieving the goals of society. Construction is one of the largest industries and contributes to about 10% of the gross national product (GNP) in industrialized countries. This is the main reason we have to study and concentrate on construction productivity measurement and Improvement.

This industry is complex with a large number of parties as clients, contractors, consultants, stakeholders, shareholders and regulators. Its performance affects and is affected by national economies.

METHODOLOGY

- Identify the main key performance indicators of construction productivity in Australia.
- Determine perceptions of project managers with respect to these indicators, as measured by a Relative Importance Index
- Evaluate the degree of agreement between the project managers regarding the ranking of key performance Indicators.
- Test the association between the ranking of owner, contractor and consultant parties regarding key performance indicators.
- Formulate recommendations to improve performance of construction productivity in Australia.
- Identify the factors affecting the performance of construction productivity in Australia.

Research Results

In this study, 89 project managers working in the construction industry in Australia were asked to complete a semi-structured questionnaire, asking them to rank 15 factors in construction productivity. Each question was s precise, short, simple and understandable. The questionnaire included opportunity for participants to comment.

Responses were received from 36 project managers.

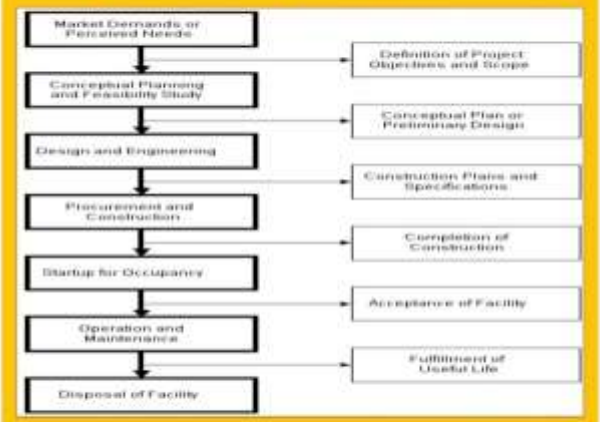
The six main factors, in order of importance as ranked by the project managers, were as follows:

1. Rework*
2. Supervisor competence*
3. Incomplete drawing*
4. Work overload
5. Lack of material
6. Poor communication

* Very much more significant than other factors.

Other factors tested included site conditions, site layout, overcrowding, inspection delays, absenteeism, worker turnover, accident , tools/equipment breakdown, lack of tools and equipment .

A journal paper on the findings has been submitted .



The Project Life Cycle of a Constructed Facility

Future Plans

- Write issues paper on need for productivity measurement and improvement research
- Seek seed funding to investigate issues in depth
- Promote need for more research in construction productivity
- Link with other researchers in similar fields globally.
- Apply for suitable research grant .

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Strategy implementation utilizing organizational project management maturity and benefits realization management

Researcher/s: Drs Jon Whitty and Bruce Millett, Student: Renata Chapman

Strategy implementation utilising organisational project management maturity and benefits realisation management

Staff: Drs. Jon Whitty and Bruce Millett Student: Renata Chapman ● Faculty of Business and Law
University of Southern Queensland ● Toowoomba ● Queensland ● Australia

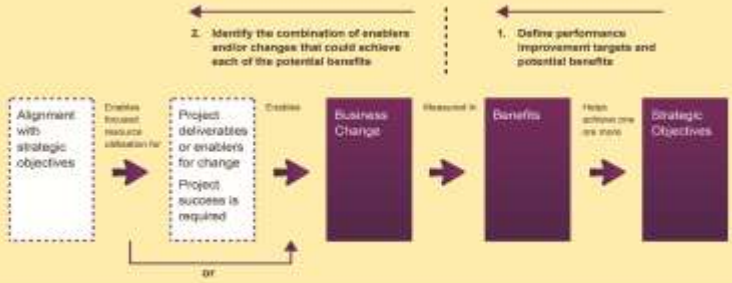
RESEARCH PROBLEM:

The degree to which strategy is implemented in organisations vary. Implementation is a process 'it is not a single decision or action…it is a series of integrated decisions or actions over time'.[1]

To achieve strategy projects should be aligned with the business strategy. To achieve strategy project success should be more outcome-related. Need to look at customer satisfaction and whether the deliverable is being used to contribute to scorecard that is implemented to monitor achievement of strategy *(refers to boxes with broken lines in figure 1)*

The framework represented by the solid boxes was utilised to improve the realisation of benefits by: Utilizing a benefits dependency network and benefits realisation plan (right-to-left approach) that links overall objectives and required benefits with the business change necessary to deliver benefits and the enablers for change[2]

Figure 1: Path to benefit realisation and strategic objectives
(Adapted from: Peppard, Ward & Daniel 2007, p. 7)



LITERATURE REVIEW

Strategy implementation

- Review suggested practices that enhance strategy implementation
- Practices that include project, program, portfolio management and benefits realisation management were tested and organisations that were more successful at implementing strategy performed better on all these components

Benefits Realisation Management

- Review BRM practices that contribute to business change, benefits realisation and achievement of objectives *(figure 1)*
- Many BRM theoretical frameworks exist. Review the practices of the frameworks to understand which are most effective to include in a theoretical framework. An example of this is utilising Benefits Dependency Networks (BDNs)

Organisational Project Management (OPM) Maturity

- Maturity models provide a framework that enables an organisations to compare its project delivery with best practice
- Review the impact of the different project domains and organisational enablers on strategic alignment, project success and strategic objectives

GAPS

Strategy implementation

- Strategy implementation should be a process, but there's a lack of knowledge pertaining to such a process[1]

Benefits Realisation Management

- Need a process for BRM that is based on an in-depth analysis of practice
- Vast majority of BRM studies are related to Information Technology[2]

Organisational Project Management (OPM) Maturity

- Majority of studies to date reviewed maturity within a specific domain
- There is no correlation between project management maturity and project success, however different models were used and varying definitions of project success
- Study that reviewed all three project domains and organisational enablers looked at adoption of practices and not strategy implementation

References:

1. Hrebiniak, LG 2006, 'Obstacles to effective strategy implementation', *Organisational Dynamics*, vol. 35, no. 1, pp. 12-31.
2. Peppard, J, Ward, J & Daniel, E 2007, 'Managing the realization of business benefits from IT investments', *MIS Quarterly Executive*, vol. 6, no. 1, pp. 1-11.

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Analyzing the impact of web-based, 'discussion support' in the Australian sugar industry: a research journey built on industry engagement, innovation and investigation

Researcher/s: Neil Cliffe, Dr Roger Stone, Dr Jeff Coutts, Dr Shahbaz Mushtaq, Dr Kathryn Reardon-Smith and the Project 3 team

ANALYSING THE IMPACT OF WEB-BASED, 'DISCUSSION-SUPPORT' IN THE AUSTRALIAN SUGAR INDUSTRY: A RESEARCH JOURNEY BUILT ON INDUSTRY ENGAGEMENT, INNOVATION AND INVESTIGATION

Neil Cliffe, Dr Roger Stone, Dr Jeff Coutts, Dr Shahbaz Mushtaq, Dr Kathryn Reardon-Smith, and the Project 3 Team.

University of Southern Queensland in partnership with the Australian National University and the University of South Australia.

Supported by the Digital Futures (CRN) Project funded through the Australian Government's Collaborative Research Networks program.

Research purpose

'Discussion support' systems in agriculture are processes which foster discussion between stakeholders about shared issues of concern and may lead to awareness raising, learning, skill development and decision making. The rationale for testing a web-based simulated discussion approach is supported in the current information delivery and extension environment where declining funding and policy support is stimulating the search for alternative delivery methods for tools and information in agriculture.

This project will test and evaluate a product (web based Second Life Machinima conversations) that can be used in a range of situations and that are accessible in remote environments, without the need for technical experts or other service providers to be physically present in a discussion.

Research background

During 2012, facilitated discussion based approaches were applied within workshop processes in the sugar industry to deliver learning based outcomes and develop skills in applying seasonal climate forecasting to management decisions. Workshop evaluation (206 participants, 81% of whom were farmers) reinforced the value of climate information to cane farmers, who indicated a high potential benefit in assisting farm planning and a high likelihood of use of climate forecasting information in their decision making processes.

Helpful aspects of workshops: Tag cloud with frequency of words mentioned highlighted with larger fonts.

Potential benefits of research...

The benefits of the application of digital animation, discussion support products and approaches may include:

- Increased accessibility of information to individual farmers and farmer groups;
- Accessibility of information to agricultural service providers who could use the product to support their own extension activities with farmer groups;
- Improved cost effectiveness of information delivery;
- Delivery and communication of complex information in a context that users and user groups can apply to their own individual situations;
- Improved management of climate risk in the sugar industry leading to higher productivity and profitability.

Research Questions...???

How effective are digital animations as a medium to promote discussion about climate and risk management information in groups of Australian canefarmers?

How effective in influencing the way Australian canefarmers **access and use climate forecast information** are simulated farmer discussions within digital animations ?

Literature review

Themes for enquiry include:

Decision and discussion support systems in agriculture: Analysing and investigating the lack of uptake by farmers in the use and output from bio-physical decision support models incorporating climate risk, Nelson et al (2002) and Stone et al (2010). Comparing and contrasting examples of discussion support products supporting farmer learning and action in climate risk decision making, or within other sectors?

Participative and collaborative learning: Analysing individual experiential learning within the context of group discussion processes, Kolb (1984).

Agriculture extension: Analysing robust agriculture extension processes which facilitate learning and skills acquisition, Van Den Ban (2010).

Seasonal climate forecasting in agriculture: Analysing processes of communication of climate forecasting information, understanding and application within agriculture, Meinke et al (2005), Everingham et al (2002), Hammer et al (2000).

Climate change and agriculture: Analysing processes of communication of climate change adaptation information within agriculture, Cobon et al (2009).

Use of digital animations in extension and education: Analysing the use of digital animations in agriculture and other sectors. Comparing and contrasting the use of animations compared to real people in a digital communication product, Butler (2012), Laurillard (1998).

Qualitative research frameworks: Investigating the use of phenomenological approaches (Marton, 1981) to determine how research subjects perceive and understand the messages conveyed in the digital animation.

Methods for trialling machinima

- Develop and write the script for the animated discussion;
- Review design and 'look' of the animation for cultural acceptability;
- Design a semi-structured interview process to collect data;
- Obtain ethics approval;
- Conduct 17 interviews across 6 cane growing regions [cane farmers (7), sugar industry extension officers (6) and Canegrowers Organisation staff (4)];
- Hand code, analyse and query data;
- Develop recommendations for future machinima development.

Interim results from trialling machinima...

Interviewee quotes and ratings for the value of the machinima as a method to convey messages to cane farmers.

First impressions: 'typical farmer conversation'; 'realistic scenario'; 'choppy graphics'; 'well put together'; 'starts people thinking about risk'; 'prefer real actors'.
Characters: 'very accurate'; 'good cross section'; 'too clean, shiny and young'.
Setting: 'looked like a cane farm'; 'standard shed meeting'; 'appropriate for audience'.
Key messages: 'planning'; 'too basic'; 'discussion of decisions'; 'seasonal forecasting and probabilities'.
Appeal in conveying messages: 'good for prompting and helping discussion'; 'good medium to get message across'; 'way to create discussion'; 'useful for other topics' 'very innovative'.
Mean rating of value (1 = low value and 10 = high value): Farmers: 6.9 (N = 7); Extension Officers: 7.2 (N = 6); Canegrowers Org: 6.4 (N = 4)

The future research journey...

Development of up to three more machinima for relevant sugar industry situations.

- Script and animation development based on feedback from experimental machinima analysis.
- Refer to reference group (willing participants from initial machinima trial) to assist in ground-truthing the final product.

Design an experiment to test machinima with stakeholders in a group situation to compare, contrast and evaluate the outcomes derived from a group discussion process.

Project contacts:

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Impact of ICT usage in teaching and learning: evidence from three Australian universities

Researcher/s: M S Arifeen Khan Mamun, Mafiz Rahman, Rasheda Khanam

Impact of ICT usage in teaching and learning: evidence from three Australian universities

M S Arifeen Khan Mamun • Mafiz Rahman • Rasheda Khanam • School of Accounting Economics and Finance
University of Southern Queensland • Toowoomba • Queensland • Australia

PURPOSE & SIGNIFICANCE

The main perceived benefits of ICT in teaching and learning at the university are distance learning, which is based on high flexibility, and low cost for education (OECD 2005). However, despite flexibility, high withdrawal is reported high for distance learners in Australia. The estimated figure is 34% compared to 12 % for on-campus studenta (Mcintosh and Morrison 1974 cited in Palmer & Bray 2002). Though gross enrolment rate was 80 % in 2010 (World Bank 2010), the share of Australian young with tertiary level first degree (i.e. bachelor degree) was 37 %, which was lower than OECD country average of 40% in the year 2010 (OECD 2012). Student's drop out is a crucial issue for the efficiency of university (Belloc, Maruotti and Petrella 2010). Furthermore, though distance education is considered as a low cost education compared to conventional education (Daniel 1996), the critical view is that distance education provides inferior quality education to the disadvantages who cannot afford on-campus learning (Klees 1995). There are literature in this area (Palmer & Bray 2002; Coates, D. 2004; Yousef & Dahmani 2008) but the results are inconclusive. If the distance learner have low quality education, the educational outcome is not considered cost-effective in true senses. It goes against the perceived benefit of ICT in education. Hence the significance of the study is realized.

RESEARCH QUESTIONS

- What is the pattern of ICT usage among students of university?
- What are key determinants of ICT usage?
- Does ICT usage bring about any changes completion rate?
- How differences in ICT usage affect learning outcomes?
- Are there any differences between distance learners and face to face learners in terms of their learning outcomes? If yes, to what extent the differences exist?
- Is usage of mobile devices in education cost-effective?

RESEARCH DESIGN

Innovation of the research

- Using holistic concept of ICT .
- Developing econometric model based both sociological and economic theory. Doing the analysis in the context of Australian university students.
- Extending causality analysis to cost effectiveness analysis.

Hypothesis

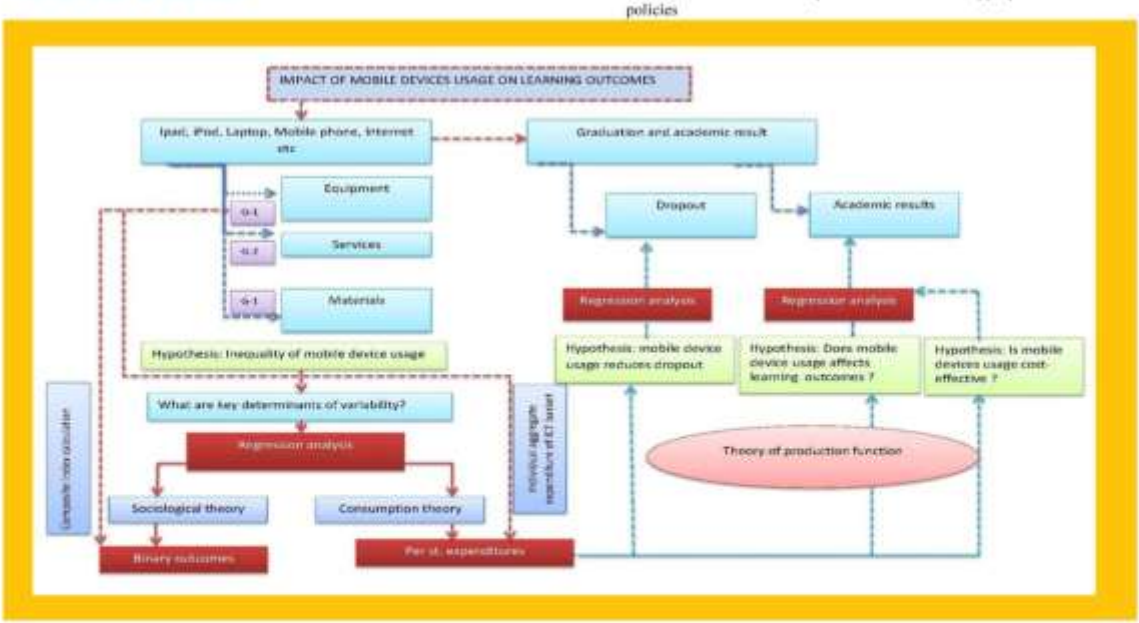
- *Hypothesis 1:* There are inequalities in interactive mobile device usages among university students.
- *Hypothesis 2*: ICT usage reduces dropout rate in the Australian universities
- *Hypothesis 3*: Differential ICT usage makes significant differential impact on students' (on-campus and off-campus) learning outcomes.
- *Hypothesis 4:* ICT based distance learning is cost-effective compared to face to face learning.

METHODOLOGY

- Conduct sample survey of students to collect cross-sectional data from three universities: University of Southern Queensland, Australia National University and University of South Australia.
- Econometric model will be used based on social logical theory, consumer theory and production theory to test research hypotheses.

CONCLUSION

- Generate empirical data about effects of ICT on university students.
- Identify the salient factors that affect student outcome and cost of education
- Inform the public policy makers and researchers about the research outcome to facilitate the adoption and execution of appropriate policies



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Impact of Micro Finance on Health, Education and Poverty Alleviation in Developing Countries: A study on Bangladesh

Researcher/s: Mohammad Monzur Morshed Bhuiya, Rasheda Khanam, Mafiz Rahman

Impact of Micro Finance on Health, Education and Poverty Alleviation in Developing Countries: A Study on Bangladesh

Mohammad Monzur Morshed Bhuiya. Rasheda Khanam. Mafiz Rahman• Faculty of Business & Law
University of Southern Queensland • Toowoomba • Queensland • Australia

INTRODUCTION

Microfinance is judged one of the most important tools for poverty diminution. It has attracted the attention of governments, donors and development agencies all over the world. In 2006, Dr Muhammad Yunus and the Grameen Bank were awarded the Nobel Prize for Peace, for their contribution to the reduction in World Poverty. Since the inception of Micro Finance Institutions (MFIs) in Bangladesh, those institutions are involved in the activities of microfinance. In spite of the involvement of MFIs in rural area of Bangladesh, the condition of health, education and poverty situation was not improved significantly.

AIM OF THE STUDY

- To focus on the impact assessment of microfinance operations on some variables such as health, education and poverty.
- To provide relevant suggestions as to the success of microfinance operations.

RESEARCH QUESTIONS

- In what extent to microfinance schemes have made a lasting difference in pulling households out of poverty in Bangladesh?
- Whether the microfinance actions have been able to improve the health, education of the beneficiary?
- Whether the existing microfinance programs conducted by various Micro Finance Institutions (MFIs) are time- worthy and effective?

RESEARCH HYPOTHESIS

Hypothesis 1: Microfinance operations have positive impact on the health and education condition of the beneficiary of microfinance in Bangladesh.

Hypothesis 2: Microfinance operations contribute to reduce or alleviate poverty in Bangladesh.

Hypothesis 3: Effective management of microfinance operations has positive relationship with living standard of the recipient of microfinance.

METHODOLOGY

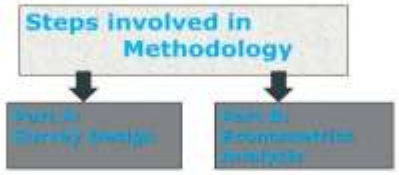
Research Design

The study will be conducted in selective districts of Bangladesh considering the following groups.

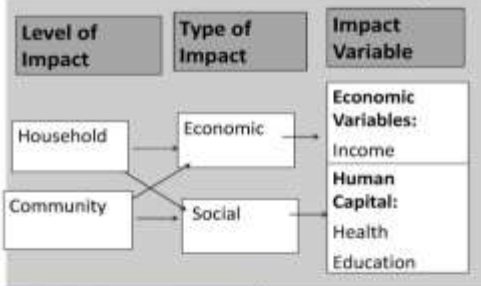
- Treatment Group
- Control Group

Data Collection

- Primary Data: Field Level Survey
- Secondary data : Household Panel Data.



Potential impact of microfinance at a household and community level



EXPECTED OUTCOMES

- Microfinance operations for rural activities expansion is likely to exhibit significant, positive effects on some economic and social upgrades, especially to income, health and education.
- More extensive study is required to assess the socio-economic impact of microfinance operations on rural households.
- Policy advice will be implemented based on empirical investigations.

CONCLUSION

Microfinance is now established as an important poverty alleviation tool, although most MFIs exclusively focus on income generation for poor people. This is only a partial solution. MFIs need to target other 'basic needs' of the poor, including health and education. Microfinance clients' economic and physical well-being is vital towards a better future. Poverty alleviation is successful only when all basic needs of poor people are fulfilled eventually.

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Rethinking professional development: How university teachers learn in a learning mobility ecosystem

Researcher/s: Maxine Mitchell

Beyond Project Management methodologies

Researcher/s: Markus Krusi

Beyond Project Management methodologies: Exploring the role social competencies play in managing a construction project

Author: Markus Krusi, Supervisors: Dr Jon Whitty, Dr Barrie Todhunter
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1. Research Problem

Construction projects have been completed for millennia prior to the introduction of project management theory in the 1950s. The subsequent '*projectification*' of doing business has not achieved the anticipated high success rate . This indicates that project success is based on more than the application of project management theories, namely social skills of the project manager.
The aim of this research is to evaluate how project management theory and social skills interact and how they can be amalgamated .

2. Literature

There is ample literature that focuses on the success or otherwise of the use of project management theory in construction. The problem is that success in project management is defined as successful application of the theory rather than a successful outcome for the organisation or society in general.
Other literature is focusing on the application of social skills in business. There is agreement in the literature that no business activity can take place without social interaction. Relevant literature indicates that social skills may have a greater relevance than technical skills.

3. Literature gaps

The literature analyses project management theory and social skills as separate entities but fails to show how these quite different type skill sets interact. No ethnographic studies have been carried out to support the view of the literature that social skills have a beneficial influence in all aspects of business, including project management endeavours.
Although some studies have been carried out in the field of health and education there is little evidence that the results are equally applicable in a construction environment

4. Research Proposal

We know that project management theory and the resulting methodologies work to some extent but provide only limited success. We also know that projects are one of many human endeavours that require social skills.
This research aims to show how the two distinctly different skill sets interact and how they contribute to the successful outcome.
Establishing the value of the contribution social skills make towards managing projects successfully will provide hints as to how the skill sets can be utilized better.

5. Methodology

A case study will be used to investigate how project management theory and social skills are applied in practice and what parts are contributing to the successful outcome of a project.

The case study will investigate the input components that contribute to the outcome, consisting of the prescribed methodology plus the intention and actions of the project manager

The knowledge continuum consists of the three main knowledge components

- **Explicit knowledge = project management methodology**
- **Implicit knowledge = project manager's experience**
- **Tacit knowledge = project manager's social skills**

The waterfall method will be used to investigate the entire knowledge continuum.

A complete picture will emerge to show the extent of contribution to the project's success provided by the project management theory and social skills .

6. Contribution

The result of the study will provide data showing whether project management theory in its current form is sufficient to assist the project manager in carrying out his duties. It will reveal areas where the theory constrains rather than assists the project manager. Furthermore areas of social skills that could be included in the project management methodology used.

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Dynamic Duos: An examination of the collaborative relationship between teacher and student in the context of Senior Art

Researcher/s: Dr Margaret Baguley

Dynamic Duos: An examination of the collaborative relationship between teacher and student in the context of Senior Art

Dr Margaret Baguley • Faculty of Education
University of Southern Queensland • Springfield• Queensland • Australia

INTRODUCTION

Senior art students enter into an intensive relationship with their art teacher who acts as a mentor during the preparation of their senior art folio. There is limited existing research describing the developmental and transformative process which occurs between the senior art student and their senior art teacher during this time.

Thematic Count from Interviews

	School A	School B	
	n = 3	n = 3	Total
Theme			
Skills and Expertise	51	111	162
Support	48	106	154
Access	18	43	61
Awareness	54	101	155
Motivation	24	16	40

METHODOLOGY

Context Setting: Individual Interviews & Observations (beginning, middle and end of school year)

- Sites: Queensland & Tasmania : Individual interviews were conducted with three senior secondary art students and the senior art teacher from each school. Observations were undertaken in the senior secondary art studio context to provide data concerning the working processes and developing relationships in this setting (4 interviews/observations x 3 - 2 sites)
- The data from the interviews was transcribed and progressively analysed to identify emerging themes, patterns and categories that were important to the research. This qualitative data was subsequently organised to determine similarities and dissimilarities between the information given by the participants.

Student Interview Themes

- **Skills and Expertise** – reference to skills and expertise which had been enhanced through teacher demonstrations or challenges associated with attaining these.
- **Support** – acknowledgment of the emotional and/or physical support of their teacher in the completion of the participant's art work.
- **Access** – reference to resources which enabled the participant to complete their art work, such as access to their teacher after hours.
- **Awareness** – awareness of where the participant's arts practice positioned them in terms of future careers.
- **Motivation** – reference to statements by the teacher or visual information which compelled the participant to go above and beyond the expectations for senior art.

Participant 3: School A - Example of Senior Student Art work exhibited for external moderation

I'm trying to get the boys to understand that my role's not a teacher. I don't say what's right or wrong. I do tell my boys that part of our relationship is a lot of frustration. That's me getting to the point where they're frustrated and that makes me happy because I know they've gone past their normal processes.
(Senior Art Teacher, School B)

... when I get really responsive students they become – for me it's just like talking to other artists. You treat them at the same level ... I don't see it as a leadership thing now. I just think it's a responsive kind of interaction between artists. In the end they see you more as a friend that's got information.
(Senior Art Teacher, School A)

CONCLUSION

The findings of this research project will enhance the experience for both senior art students and teachers by clearly describing the complexities involved in transforming the student's perception of themselves from student to emerging artist. This identification will allow senior art students to re-contextualise the impact of their work resulting in a professionalisation of their student experience.

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Hong Kong second language student teachers actively developing a community accepted productive and generative professional identity

Researcher/s: Dr Kathie Young

Hong Kong second language student teachers actively developing a community accepted productive and generative professional identity

Dr Kathie Young • Faculty of Education
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INTRODUCTION

•The professional identities of Hong Kong pre-service non native English speaking teachers' (non-NESTL) often reductively premised on community held beliefs about what constitutes effective language use and efficiency in learning and teaching – grammar use and British accent.

•Debriefing processes after a series of pre-service practicums revealed how above beliefs discouraged the development of agency as English language professionals but also where experiences of non-NESLTs had begun reveal gaps.

•Debriefing processes supported non-NESLT to confront and contest hegemony of surrounding power relations and reveal where their discourse had begun to reflect a counter discourse, valuing local ways of thinking as well as negotiating new meanings as an effective non NESLT.

METHODOLOGY

•Holliday's 'Illuminatory instances' based on narratives chosen as research instrument to allow narrator to re-imagine events and to reconstruct their identities as being in the world. (Hofmeyer, 2008)

•Six undergraduate non-NESLT English language students arbitrarily assigned to supervise for observations during practicums by the Practical Experience Office.

•In-depth, semi structured, one on one interviews before and after each practicum observation with university supervisor.

FINDINGS

•Community held beliefs continued to define an effective non-NESLT yet for Non-NESLT professional learning and associated experiences sufficiently troubling to reveal gaps and create dissonance.

•Through ongoing supervisor de briefing sessions for 8 weeks, the students confronted and contested dissonance.

•Narrative interview processes in debriefings assisted students to make conscious their unconscious beliefs and that they had the potential to shape a generative identity as a non-NESTL communicator and effective teacher.

•The Non-NESLTs identities began to reveal their potential to develop agency and a community accepted professional identity that could be both productive and generative.

Encountered dissonance: confronting and contesting

•Initial pre practicum interview processes encouraged non-NESTL to confront diverse dialects of English as their foreign non British lecturers spoke with diverse accents.

•Native speaker dialect differences fostered a desire to 'understand much more about language use & development'.

•Traditional language classroom teaching and learning failed to inspire non NESLT as school students.

•Non NESLT realised could never meet community accent expectation, yet had capacity to use many effective western motivating teaching strategies and approaches.

•Successfully implemented them in their practicums e.g. their students now were motivated and active learners and by association felt they were effective language teachers.

Negotiation, reshaping and developing agency

•Current round of practicuums revealed potential of motivating and supporting students to be 'happy and communicate freely in class in English' instead of engaging in repetitive grammar drills and practicing pronunciation.

•Non-NESLT realised that by making learning 'fun and different from before', their students were engaged and productive.

•Non-NESLT developing lay theories that for them resonated with belief that as teachers, 'we affect students and if they can appreciate English on their own and are known for their English use as well as know how to continue to learn English, this is the most successful English teaching.'

•Result -'increasing pride as can show students that as Chinese people, we can speak English and by focusing on aspects of their practice, can be effective English language communicators and good role models for other Chinese people learning English.

CONCLUSIONS

•Debriefing processes showed for non- NESTL that they have the capacity to motivate their students to enjoy English earning and successfully apply the skill and knowledge in Hong Kong Special Administrative Region gate keeping exams.

•This represented for non NESLT a significant step towards successfully creating and occupying an agentive space in a profession defined by intense social pressure to conform.

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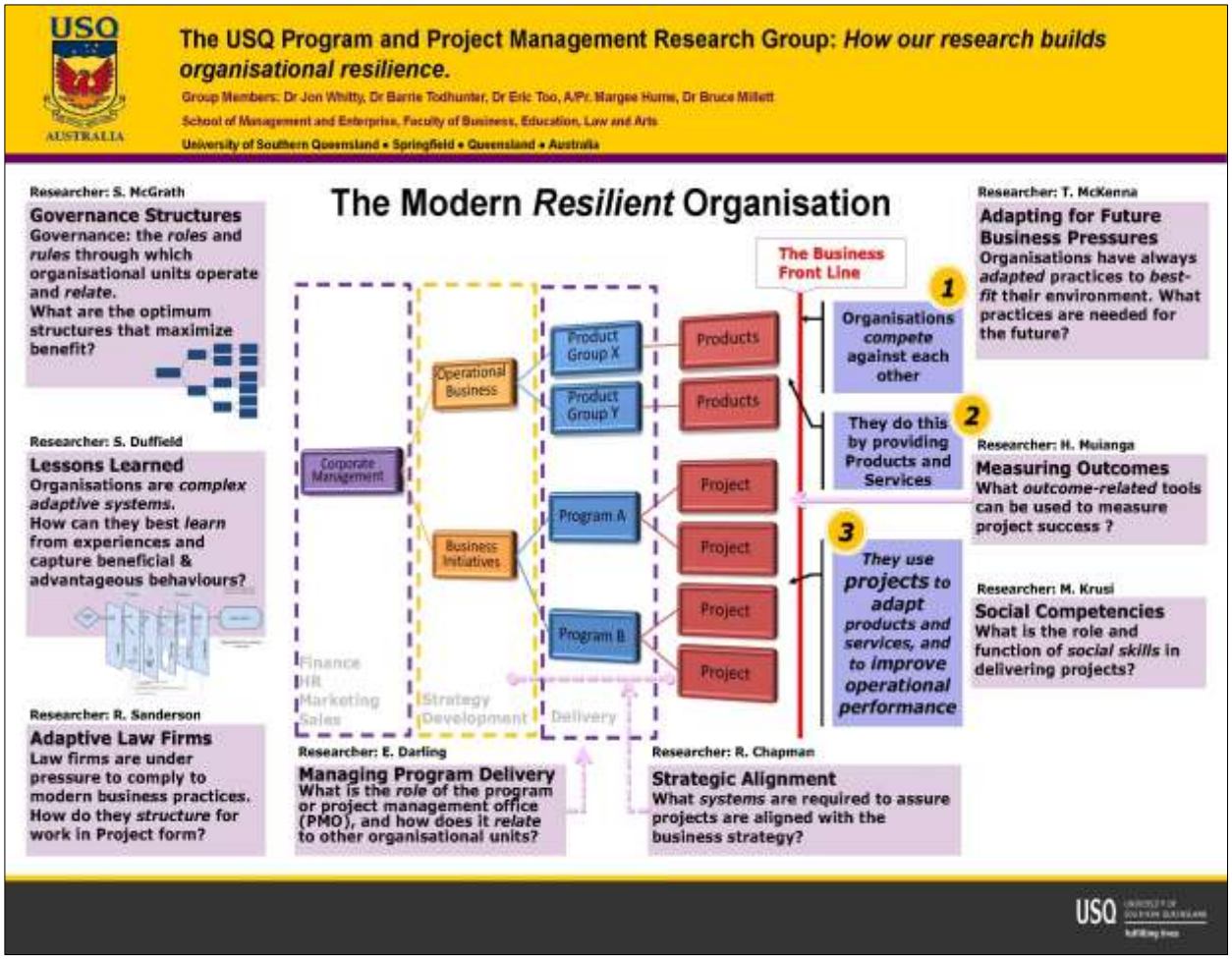
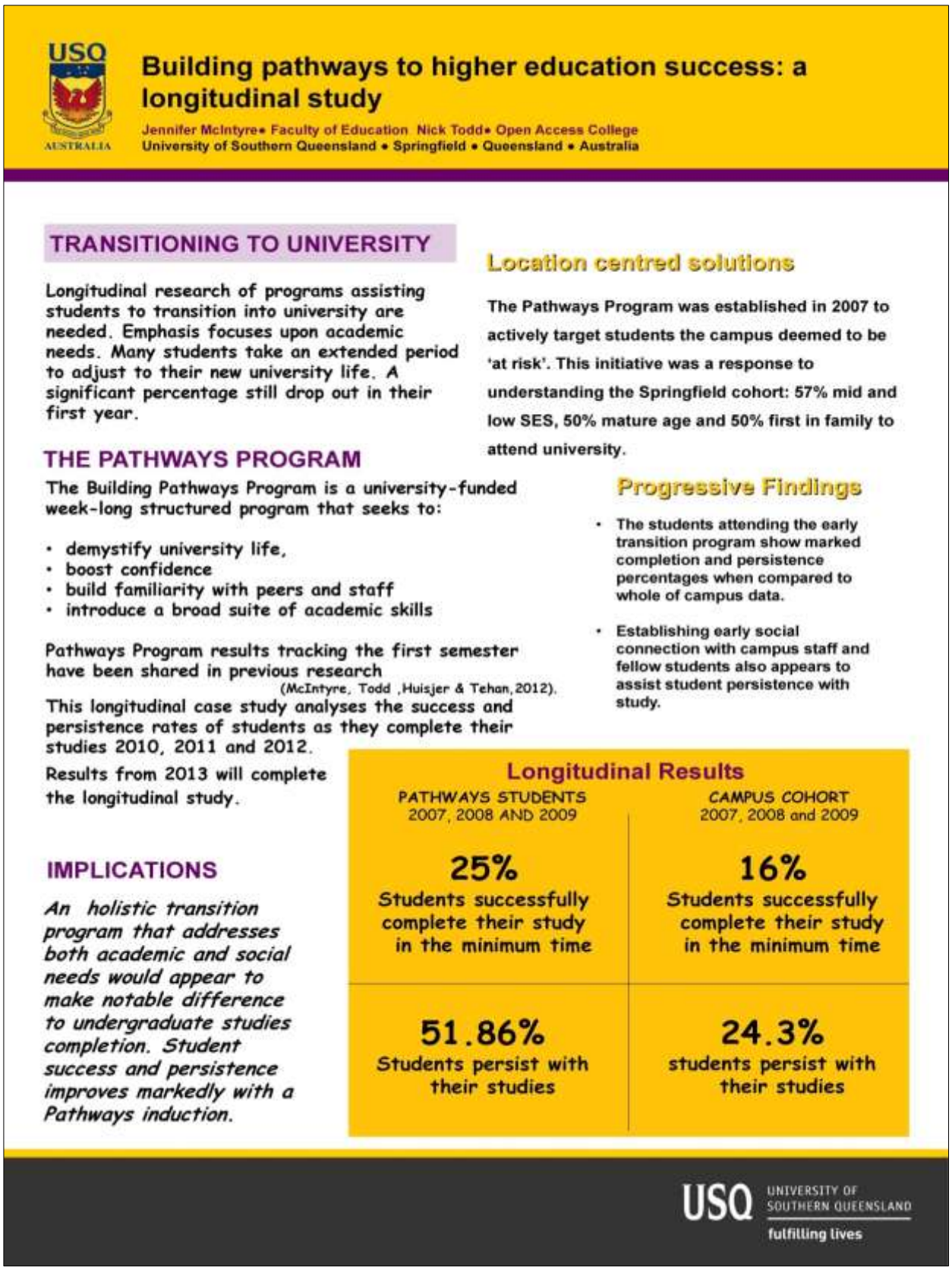
The USQ Program and Project Management Research Group: How our research builds organizational resilience

Researcher/s: Dr Jon Whitty, Dr Barrie Todhunter, Dr Eric Too, A/Professor Margee Hume, Dr Bruce Millett



Building pathways to higher education success: a longitudinal study

Researcher/s: Jennifer McIntyre, Nick Todd



Legal Project Management – Understanding the pressures of change in the legal industry

Researcher/s: Richard Sanderson

Legal Project Management – *Understanding the pressures of change in the legal industry*

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1. INTRODUCTION

The landscape in which lawyers work is changing. Supply outstrips demand and client's expectations of law firms are shifting. Law firms are expected to engage with their clients at a commercial level as opposed to being a sage advisor of the law.

2. Research Problem

Law firms are under various pressures to move away from the billable hour and engage with their clients on the client's terms.

Pressures come from:
- Industry Demands
- Management Needs
- Client Requirements
- Lawyer Expectations
- Global Economic Status

Law firms are therefore being asked to put 'some skin in the game' when they are engaged to work on a legal matter. Their response is to employ Legal Project Management.

Examples of Alternative Fee Arrangements:
- Fixed fees
- Value based billing
- Fee on success
- Ramped rate cards
- All you can 'eat' deals
- Equity share deals
- Combined engagement models

3. Research Proposal

The research is in a very early stage. Nevertheless some preliminary research questions have come to the fore:

- What is Legal Project Management?
- How has it emerged?
- Why are law firms turning to project management?
- What are the different expectations of clients, partners and staff?
- Will Legal Project Management solve the problem?
- What problem is Legal Project Management trying to solve?

4. Initial Approach

Initially this study will undertake a review of the commercial landscape of law firms – the way law firms engage with their clients. The study will compare and contrast the engagement models between lawyers and their clients that have been in place over the last 100 years.

Once the changing landscape has been understood the next phase of the study will seek to understand what is meant by the term Legal Project Management and then define what expectations are held by the various stakeholders affected by its implementation.

5. Concluding Remarks

Pressure to move away from the billable hour has existed for decades and its demise was predicted in the 1990's yet it remains the most prevalent engagement model today.

This study will review this changing landscape, why Legal Project Management is being seen as the saviour for law firms and what Legal Project Management needs to deliver to succeed.

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The relationship between projects and their initiating organisations – (re) defining governance

Researcher/s: Steve McGrath

The relationship between projects and their initiating organisations – (re)defining governance

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1. Research Problem

Projects are the means of delivering business improvements. The interaction between projects and the business is complex and interdependent. The relationship between them is established by the governance arrangements that are put in place. The governance concept has emerged without any universally agreed definition, producing debate about whether it is procedural or philosophical. This research seeks to clarify terms and investigate alternative ways of linking the two organisations, one temporary, one permanent.

2. The Literature

The literature indicates that steering committees have become associated with good governance, primarily arising from attempts within the Information Technology area to replicate the company board of directors concept. This notion is generally accepted without question.

Organisational structures are also generally shown in the traditional hierarchical way, with occasional reference to matrix structures. Re-arrangements of the boxes in the traditional model are referred to as 'alternative'.

3. Literature gaps

The literature generally does not explicitly recognise the importance of power and its distribution and overlooks the need for a functional two-way power linkage mechanism between the temporary and permanent organisations.

There also exist no clear, agreed definitions of many of the terms associated with governance, such as accountability, responsibility, stakeholders and even governance itself. There is also confusion around the role steering committees perform.

4. Research Proposal

To understand the nature of the relationship between temporary and permanent organisations and their structures, with a view to developing alternative methods of linking the two, thereby enabling improved organisational and project outcomes.

5. Methodology

The research will have stages as follows:

Stage 1: Literature Review to identify/ confirm areas of disagreement/ confusion
Stage 2: Conduct field interviews to confirm/ refine
Stage 3: Define terms and determine key variables
Stage 4: Plan an intervention and select an organisation
Stage 5: Action Research intervention
Stage 6: Evaluation of intervention

Participants will be sought from Government organisations and private commercial companies.

6. Preliminary Findings

The steering committee/ board of directors concept is one way of sharing power, but it is a democratic mechanism that has an uneasy fit with the hierarchical authoritarian way many large organisations run.

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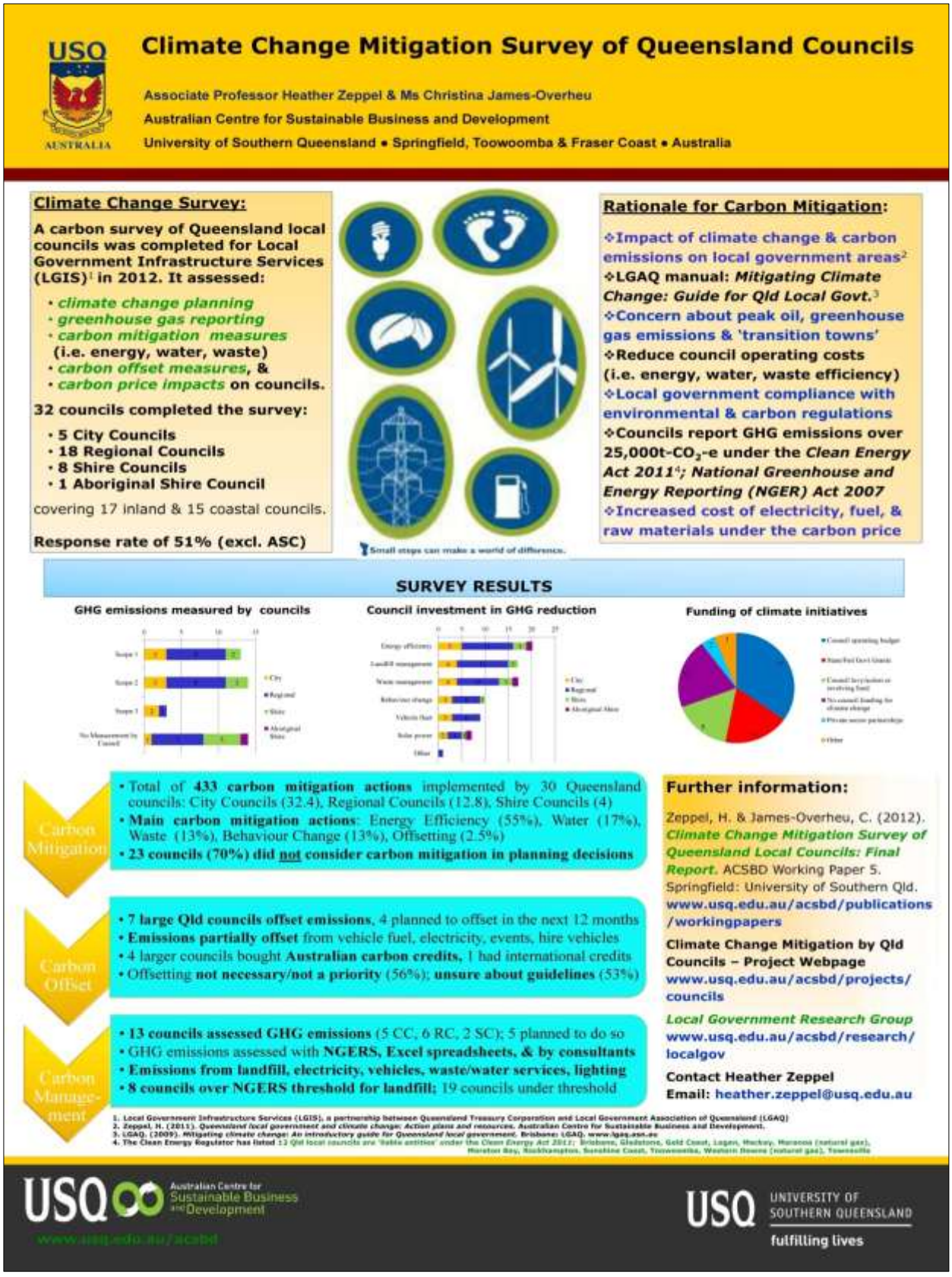
Climate Change Mitigation Survey of Queensland Councils

Researcher/s: Associate Professor Heather Zeppel and Christina James Overheu



Happiness and Life Satisfaction: Insights from Focus Groups

Researcher/s: Heidi Saunders, Alyssa Kliese and Dr Hong Eng Goh

Happiness and Life Satisfaction: Insights from Focus Groups

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INTRODUCTION

Since the King of Bhutan developed the measure of Gross National Happiness Index (GNH) in 1972, the concept of happiness has attracted increasing attention, particularly with the advance of positive psychology in the late 1990s (Samman, 2007). However, this poses the question of 'Is there a difference between happiness and life satisfaction?', a construct that has been studied for many more decades. Samman (2007) has found that happiness involves the balance between positive and negative affect in momentary pleasure, while life satisfaction includes a cognitive component which incorporates a number of domains.

Continuous research has addressed these constructs across the lifespan. Social surroundings have been found to have a constant influence on the happiness of an individual over all generations (Ryan & Deci, 2001). Mroczek and Kolarz (1998) found that as individuals age their happiness is due to a lessening of responsibilities and increased freedom and control. The generational change in life satisfaction is hard to define as it has been established that change in importance of domain can change or stay constant depending on the individual (Heidemeier & Staudinger, 2012).

The purpose of this study was to investigate whether there is a difference in the conceptual meanings of happiness and life satisfaction, and whether these change between generational groups.

PARTICIPANTS

	Happiness	Life satisfaction
Generation Y	*Mage* = 20.3 n = 4	*Mage* = 22 n = 4
Generation X	*Mage* = 34.8 n = 4	*Mage* = 38.3 n = 4
Baby Boomers	*Mage* = 56.5 n = 4	*Mage* = 54.5 n = 4

PROCEDURE

- Participants were asked to appraise their level of happiness or life satisfaction on a scale of 1 (*least happy/satisfied*) to 10 (*most happy/satisfied*).
- Participants were asked to consider what influenced their rating and write it down on provided card.
- Discussion was started by asking the participants to voice what made them happy or satisfied.
- Probing questions were asked as necessary.
- A recording of each session was transferred onto a password protected computer.
- Each session was transcribed and edited so it was compatible with the Leximancer program to analyse main themes and concepts.

RESULTS

In relation to happiness (Figures 1 - 3), social interaction was the most prominent theme for Generation Y (99%), Generation X (28%) and Baby Boomers (100%), which was in a central position with a direct link to all other themes for all groups. Secondarily, Generation Y had a focus of experiencing happiness as a feeling (29%) compared with a focus on past major life events for Generation X (24%) and Baby Boomers (64%). Having control over life was a theme in happiness for Generation X (1%) and Baby Boomers (8%). Generation Y's life satisfaction (Figure 4) was found to relate to their feeling of happiness (47%), while Generation X's life satisfaction (Figure 5) involved happiness with their family and work life (50%). Baby Boomers identified social interactions (36%) as most important for their life satisfaction (Figure 6). Generation Y also indicated friends (13%) as important, which related to social support, while Generation X indicated how they raised and spent time with their kids (23%). Baby Boomers centralised on their children and the way they have grown, their accomplishments, and how their children make them feel (15%).

Figure 1. Happiness for Generation Y.

Figure 2. Happiness for Generation X.

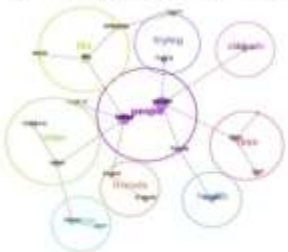

Figure 3. Happiness for Baby Boomers.

Figure 4. Life satisfaction for Generation Y.

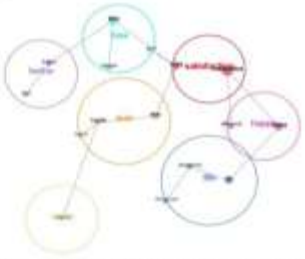

Figure 5. Life satisfaction for Generation X.

Figure 6. Life satisfaction for Baby Boomers.

DISCUSSION

There were mixed findings across generations for happiness. The importance of social interaction was shown to remain constant, in support of Ryan and Deci (2001), while feelings around the self and people are also important for Generation Y compared with the experience of life events being prominent for the older generations. Control contributes to happiness for Generation X and Baby Boomers, increasing in importance as people age (Mroczek & Kolarz,1998). Life satisfaction changed across generations. The focus was on feeling happy in Generation Y, which changed to children and work in Generation X, and social interactions for Baby Boomers. This is consistent with previous findings, that satisfaction with life does remain constant but the contributing factors can differ slightly, depending on the individual (Heidemeier & Staudinger, 2012). Interaction with people was found to be a main theme for all generations; however, it was more central to happiness than life satisfaction. Happiness appeared to be determined by day-to-day interactions with people resulting in positive or negative affect, while life satisfaction seemed to focus on domains such as family, happiness and work (Samman, 2007).

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Creative classrooms – Investigating the lived experience of three primary school teachers and their engagement with the arts in the school context

Researcher/s: Hayley King

Creative Classrooms - Investigating the lived experience of three primary school teachers and their engagement with the arts in the school context

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INTRODUCTION

This research project investigated three primary school teachers and their lived experience of the arts. By studying each participant's individual journey, the project revealed how their personal experiences of the arts affected their current approach to teaching, including their pedagogical beliefs and practices. Through narrative inquiry, the project sought to illustrate the importance of personal experience in the context of arts teaching, and provided a deeper understanding of the teaching of the arts in the current educational context.

Research Question & Project Aims:

The main research question guiding this study was:

What factors impact on and inform a teacher's philosophy and pedagogy in relation to teaching the arts in the classroom?

The project aimed to:
- Gain an understanding of how personal experience can impact on and inform a teacher's philosophy and pedagogy in relation to teaching the arts in the primary classroom.

- Examine how a teacher's philosophy can impact on the decisions they make when considering existing or emerging curriculum frameworks to design arts experiences for the primary classroom.

METHODOLOGY

"Story is enormously sensitive to whatever challenges our conceptions of the canonical. It is an instrument not so much for solving problems as for finding them..." (Bruner, 2002, p.12 as cited in Webster & Mertova, 2007, p. 100).

The research was conducted using the methodology of Narrative Inquiry. Through this process the participants co-construct their narrative accounts with the researcher. This provided participants with an opportunity to simultaneously explore their past, present and future with direct focus on their experiences with the arts. The research paper adopts a constructivist paradigm as the framework for the study, as it follows a naturalistic qualitative methods approach to which narrative inquiry is well suited.

Identified themes supported by literature

The themes revealed were:

- ***Lived Experience***: This was identified by all three participants as an important element that drives their personal philosophy and pedagogy. Through lived experience, the participants were able to make meaning of their past and were able to become successful arts educators who continuously develop their self-efficacy.
- ***Pre service teacher training***: All participants agreed that their pre-service teaching training was limited in core arts courses that would have prepared them to be successful arts educators. However, all three found ways to overcome these obstacles.
- ***Curriculum priorities***: Lack of time to teach the arts because of curriculum priorities was the biggest factor identified by all participants. All agreed that they had to integrate the arts in their daily practices in order to cover content and curriculum but also agreed that the arts requires dedicated time in keeping with its designation as a key learning area.
- ***Perceptions of the Arts***: All three participants acknowledged that due to national testing and the prioritising of literacy and numeracy, that the arts were perceived in both their schools and the wider social community as an additional rather than an essential aspect of children's education.

CONCLUSION

The implications of the study revealed that it is crucial to ensure:

- Pre service educators continue to develop self-efficacy in the arts and promote creativity in their classrooms through both integration with other subjects in addition to dedicated time to the arts.
- Current research and international best practice models in teaching the arts are considered, particularly in an era of increasing accountability, in order to demonstrate the importance of the arts in engaging children in learning.

"The artist is an explorer and discoverer in the realm of the human personality. His [sic] raw material lies in the human personality and in human experience"
(Eisner, 1997, p. 61)

"Without the arts we would lose the fabric of creativity, expression of self, and ultimately civilisation"
(Penny et al., 2002 as cited in Russell-Bowie, 2009, p.6).




Excerpts of participant transcripts:

"The Arts is an interpretation without a right answer: everyone can have their own success".

"It's not about being artistic, it's about being confidently creative".

"All forms of the arts can be used to engage children in all aspects of learning ... it's the stigma that needs to change".

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Balanced Scorecard (BSC) frameworks and Six Sigma measurement in complex project environments

Researcher/s: Hugo Mulanga

Balanced Scorecard (BSC) frameworks and Six Sigma measurement in complex project environments

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1. Research Problem

As firms and organisations become larger, they subsequently operate in complex and dynamic environments. The need for cross-functional integration compels firms to adopt more process oriented approach to project definition and activities. The Balanced Scorecard (BSC) goes some way towards providing statistical measures of performance against established outcomes. Similarly Lean Six Sigma provides a proven and adaptable process, but exclusively on production and manufacturing process. The research will examine the synergies that exist in the Project Management field, and examine alternative approaches and methodologies across perceived competing projects championed by different groups within the same organisation.

2. The literature

The Balanced Scorecard (BSC) provides organisations with an exclusive framework for measuring performance against strategic intent. It is widely accepted and similarly provides a roadmap for the integration of Six Sigma into organisations by facilitating the transformation of strategy into performance measures.

By leveraging the strengths within these frameworks, strategy formulation and effective execution provides for higher level metrics and initiatives. On the one hand, BSC aids organisations in formalising the strategy: and on the other Six Sigma is an organisational approach towards operational excellence widely proven.

When fused, Six Sigma provides a defined problem-solving methodology with the capability to effect measurable process improvements, the BSC facilitates the translation of strategy into higher level metrics.

In the Program and Project Management context, it is not the quality of knowledge that is a strategic advantage, rather the organisations ability to effectively apply existing knowledge to create new knowledge.

3. The literature gaps

The literature identifies an increasingly complex and turbulent business environment, firms require a robust and established link between strategy and effective strategy execution.

The emerging issue of benchmarking increasingly provides for a clearer understanding of the complexity of an increasingly intertwined business practices.

As organisations strive to measure and improve on their performance outcomes, benchmarking is identified as systematically identifying the processes and performance outcomes in constantly changing business environments.

4. Research Proposal

The objective of the study is to develop a framework for the project organisation with a methodical and thoroughly quantifiable information system to enhance organisational processes and realise strategic objectives with adaptable performance indexes.

When thoroughly reviewed, the proposed design will be deployed using a thorough change management process, the BSC in combination with Six Sigma, will articulate and execute strategy as a platform for business excellence and improvement in a Project Management context.

5. Methodology

The Total Performance Scorecard (TPS) provides a top-down benchmark instrument used for guiding a firms strategic vision at the project level.

The top-down approach can be executed iteratively, and across successive organisational levels and functions.

6. Preliminary Findings

Initial review of the literature has identified benchmarking processes as an organisational tool to translate financial performance and overall competitive advantage.

The globalisation of extended value chains (firms and organisations) necessitates a different information infrastructure, and with a greater need for effective performance measures.

Third-generation balanced scorecard (BSC) provides a preliminary design methodology, however the paper seeks to extend this process into a 'real life context': one that the field of Project Management provides.

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Strategies and considerations for controlled competition landings in artistic gymnastics

Researcher/s: Dr Helmut Geiblinger

Strategies and considerations for controlled competition landings in artistic gymnastics

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INTRODUCTION

Dismounts from apparatus containing multiple rotations and twists, performed by elite gymnasts during major competitions, require great courage and the highest level of movement precision.
The purpose of this paper was to propose strategies and considerations for controlled landings on floor and horizontal bar drawing from information of the current literature and from discussion and questionnaires from elite coaches, elite gymnasts and international judges.

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Geiblinger, H. (1998). Biomechanical perspectives of competition landings in gymnastics. Doctoral Dissertation, Victoria University.

METHODOLOGY

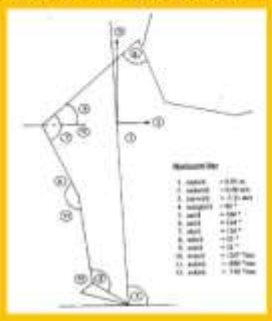
Sources and Consideration for controlled landings:

- Interviews with and questionnaires completed by elite coaches, elite gymnasts and international judges
- Observations from live performances and videos/DVD's from international competitions
- Linear and angular kinematics, and temporal characteristics involved in the execution of competition landings;
- Identify kinematic parameters crucial for controlled competition landings;
- Compare landing profile shapes (LPS) on floor and horizontal bar which constitute biomechanically sound principles for controlled competition landings.

Results

- Because of the differences in the variety and difficulty of dismounts on each event, landing profile shapes (LPS) for floor and horizontal bar were developed. The LPS can be considered as a representative biomechanical landing profile for competition landings in artistic gymnastics (Geiblinger, 1998)
- The interplay of the angular velocities between the ankle, knee, hip and shoulder joints, the temporal patterns of the kinematic chain, which enables the subject to displace the CM at will in order to maintain balance and stability during the landing process, are crucial in the production of an optimal landing performance (Geiblinger, 2013)
- The association between landing impact velocities and landing phase duration is a causative result of the resultant center of mass, resultant vertical velocity and the resultant center of mass horizontal velocity. The subsequent duration of the landing phase is greatly related to the landing phase displacement (Geiblinger, 2013)
- During landings forces are applied (not absorbed) to reduce all momentum to zero; a body that twists due to tilting must be un-tilted prior to landing ... residual rotation can be "taken-up" with circling of the arms- intersegmental transfer of angular momentum, arms rotate in direction of undesired rotation (Fink, 2009)

Landing Profile Shape (LPS) for Horizontal Bar Landings



CONCLUSION

The successful attainment of controlled competition landings are likely when efforts are made to achieve optimal release conditions, optimal rotational flight requirements, and optimal body segment coordination and timing during the landing phase. Also, factors such as reaction time and anticipation, balance, coordination, orientation, quickness, reflexes, reflex responses and reflex reversal, proprioception and kinaesthetic awareness, temporal and spatial, power, symmetry, postural adjustment before action, and sensory contribution in skilled performance specifically during the landing, all are integral components of the landing process.

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A conceptual paper: Investigating the role of event type and destination popularity in event tourism and consumers motivations to attend

Researcher/s: Frances Cassidy; Associate Professor Margee Hume; Associate Professor H Zeppel

A Conceptual Paper: Investigating the role of event type and destination popularity in event tourism and consumers motivations to attend.

Frances Cassidy; Associate Professor M. Hume; Associate Professor H. Zeppel• Faculty of Business and Law
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INTRODUCTION

- What are the motivational factors pushing sport event tourists to travel to attend a sport event from a tourist, event attendee and sport spectator perspective?
- What are the motivational factors related to the destination, the event or the sport, pulling sport event tourists to attend a sport event?
- Is there a general typology of the sport event tourist or can sport event tourists be classified into a number of different segments?

METHODOLOGY

It is envisaged that over a three year period I will publish five research papers in my field of study in internationally recognised conference proceedings and journals to obtain my PHD. These papers will relate to the types of sport events which are chosen by the spectator i.e. Hallmark or Mega events. The research will also examine the motivations to attend events and what impact this will have on marketing the event and the consumer's intent to attend.

SIGNIFICANCE

Previous Literature (Gibson (2002) has drawn attention to a number of significant gaps which have been identified in the literature in relation to the sport event tourist. There are:

- A general lack of research examining the motivation of sport event tourists;
- The general lack of current research in providing relevant and reliable constructs know to predict motivations in relation to the sport event tourist and destination choice.
- The lack of a typology of sport event tourists.

The limited published evidence available (Gibson 2008) suggests that this study could become a valuable source of insight into further development of the understanding of sport event tourists. In today's business environment, leisure and tourism service providers must become increasingly agile in terms of working with, and for, its customers. That is, they need to better focus on the needs and wants of their consumer and design products and services that will satisfy their needs (Godbey 2006; Cassidy & Pegg 2008).

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Construction-Friendly Banking - CFB

Researcher/s: Dr Vasantha Abeysekera

Construction-Friendly Banking - CFB

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University of Southern Queensland • Toowoomba • Queensland • Australia

The Problem

Banks provide friendly credit facilities to suppliers than to contractors. So contractors seek credit facilities from suppliers paying a premium!

Contractors finance clients as they don't get paid in full - a portion of the payment is withheld (called retentions) until a project is over!

Moreover, contractors work in advance of what they get paid for further financing clients!!

Banks benefit. Suppliers benefit. Clients benefit.

NOT CONTRACTORS!

Costs more to build this way!
Is there a better way for construction business?

A construction-friendly bank?

A pre-feasibility Study

Construction friendly financing - special initiatives:

- Korea Construction Finance Corporation (KCFC -early 1960s)
  Construction Guarantee Fund – Sri Lanka (2000)

General initiatives : Bank of Scotland Friendly Hills Bank (US)

Perceptions of Banks on CFB Concept

Do not have empathy with CFB. Banks say that nothing more needs to be done. They say, if a CFB is set up, it might compromise the banking system. Construction is seen as a high risk industry – so all borrowers placed in the same basket! Banks say they are risk averse, and are keen to maintain good credit quality. Prefers to serve "well established" clients. Set limits for construction lending – to manage their lending portfolios. Banks are not willing to provide mobilisation 'advances' to "spark" construction. Insist on full equity for bonds and guarantees usually; high collateral required

Focus is on the borrower and NOT the INDUSTRY

A CFB would respond differently

Perceptions of Contractors

Supportive of a CFB. Mixed responses for a bank with retentions as seed capital

Banks do not fully understand construction business and contractors. Changes need to occur in the construction finance area

Only one NZ bank has an in-house construction specialist. Huge pressure for pre-sales on property development projects; lack of up-front equity

Property developers are not differentiated with main stream contractors

Too high interest rates.

Difficulties of providing collateral; not enough history with banks, inadequate turnover records

A mismatch in perceptions...!

GENERALLY: There seems to be a lack of willingness from BANKS to search for innovative and value-adding solutions such as:

Differentiating broadly different types of borrowers, consideration of multiple and guaranteed income streams for mortgaging future payments, use of reducing-bonds, rolling advances, monitoring construction progress to minimise lending risk, recognition of service guarantees given by contractors' federations

Some plausible reasons for this state of affairs:

Lack of understanding of the nature of the construction industry
Lack of awareness of potential solutions
Banks' drivers – a balanced lending portfolio; need to increase credit quality; responsibility for shareholders and depositors
Focus on individual clients than clients from a particular industry
Lack of initiatives from the construction industry
Lack of lobbying by construction industry players for better access to finance at competitive rates

CONCLUSIONS

Sufficient evidence to move CFB Agenda forward

Opportunities for innovative services and innovative institutions

Construction stakeholders need to seek value-adding differentiated services from the banking industry

Opportunity to change the way industry works to add value. Needs further research

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Lean Construction and Sustainability

Researcher/s: Dr Vasantha Abeysekera

Lean Construction and Sustainability

Dr Vasantha Abeysekera • Construction Management • Faculty of Engineering and Surveying
University of Southern Queensland • Toowoomba • Queensland • Australia

Why aren't clients and contractors doing enough to save billions if not trillions of dollars...?

The potential is enormous with lean methodologies. Yet, not enough is being done to maximise value and minimise waste. **Why?**

ALLIANCE CONTRACTS: Incentives to reduce time and costs but OPPORTUNITIES LOST

Case 1: Waste Water Sewer Separation Project

The project involved four different phases - investigation, design, consent, and construction. Procedure for a typical property is shown below repeated for 1700 properties.

Cycle time reductions

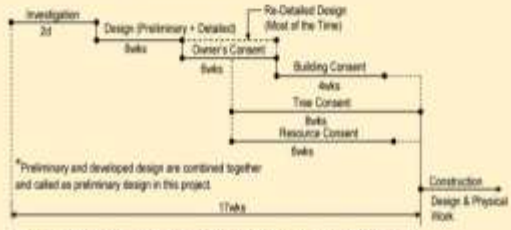
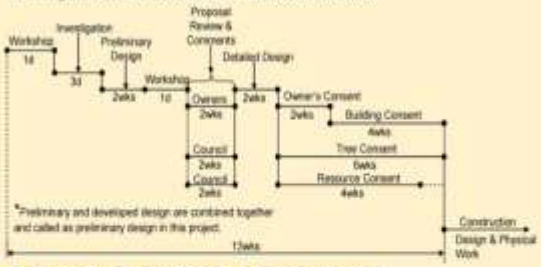


Fig. 1: Development phases for each property

Workshops with property owners before detailed designs reduced cycle time from 17 to 13 weeks with substantial saving in time and cost as shown below:



A number of questions can be raised:

- **Could this situation have been detected earlier? What steps could be taken?**
- **What is the impact of the type of contract to address such types of issues?**
- **Should the scope of KRAs be expanded to include productivity/lean-construction issues?**
- **How does the body of knowledge on lean-construction assist?**

TRADITIONAL CONTRACTS: No incentives to reduce time or cost. Opportunities plenty but LOST

Case 2: Concrete Operation in a Multi-Storey Building Project

	Existing	Proposed
Utilisation:		
Mixing	30-69%	68-93%
Transporting	15-54%	75%
Placing	30-46%	50-87%
Increase in output		62%
Reduction in cost		60%

There is waste and much scope for improvement. A number of questions can be raised.

- **Why was the opportunity not detected by the contractor?**
- **Was the contractor aware whether the actual costs were greater or lesser than estimated costs?**
- **If the actual costs were higher, would the contractor consider alternative methods?**
- **If the actual costs were lesser would the savings be compelling enough to drive change?**

Implementation potential

Scenario	Cost – Time considerations	Benefits to contractor	Benefits to client	Implementation Potential
1	Actual cost >Estimated	High	None	High
2	Actual cost < Estimated Actual time > Estimated	Moderate	None	Moderate
3	Actual cost <Estimated Actual time = Estimated	Low	None	Low

Reflections

- **The benefits of lean construction are high. How could change be brought about?**
- **Alliance contracts do not necessarily produce game breaking levels of performance without such change. How could this potential be realised?**
- **The implementation potential for traditional contracts vary. How could such contracts be incentivised to bring about sustainable change?**

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Sustainable Use of Monetary Retentions

Researcher/s: Dr Vasantha Abeysekera

Sustainable Use of Monetary Retentions

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CONSTRUCTION is the only industry where money is retained from every payment until the project is over!

Amounts held vary from country to country, from project to project with deductions at times as high as 10%.

Commonly known as 'retentions', this is an age old practice. The UK attempted to abolish but failed. Some success in the US. Others content status-quo.

The Problem

What is the purpose of retentions? Is it to protect against non-performance, poor-performance, as a reserve for remedying construction defects, as a performance incentive? There is little understanding.

How much should be retained? Is there a rational basis for setting up a retention regime? Currently, there is no plausible explanation as to how much should be held and why. Often, it is left to the judgement of the practitioner who often relies on industry norms.

What is the impact on cash flow of contractors and subcontractors? How does this impact on supply chains? Is the impact on construction costs significant? Are there creative ways in which all parties can benefit?

How could retention theories developed by Abeysekera (2007) **be used for harnessing the power of retentions?** What needs to be done to develop these theories further?

Could the power of retentions be used to enhance the performance of construction contractors?

Is the practice of retentions SUSTAINABLE?

Many questions than answers. There is little understanding.

Theories on Monetary Retentions – Simply explained

(Source: Abeysekera, V., 2007)

Retention as Cash Cow

This theory explains the value of retentions to those who outsource their work with a desire to capitalise on the cash benefits. Furthermore, the theory explains how main contractors could maximise benefits.

Retention as Steroid

This Theory explains the power of retentions to act as a catalyst for high performance (not just mediocre performance).

Retention as Beast

The Beast Theory highlights the woeful implications of retentions and how beastly features could be put to good use.

Retention as Stress

The Stress Theory explains the impact of its use, particularly extensive use of retentions, and strategies that may be used to minimise the adverse impacts in addition to providing new insights as with other theories.

Retention as Chaos

Retention is portrayed as a chaotic phenomenon. This theory suggests that features of chaos could be used for understanding new ways of managing retentions – for understanding whether there is an underlying order, or for that matter creating more chaos to achieve a complex new order.

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Time Management of Young Learners using Construction Project Management Knowledge

Researcher/s: Dr Vasantha Abeysekera

Time Management of Young Learners using Construction Project Management Knowledge

Dr Vasantha Abeysekera • Construction Management • Faculty of Health , Engineering & Sciences

A considerably large proportion of students leave university with an unfulfilled desire for training in time management with a sense of insecurity in their ability to manage time, a core skill they consider as important.

The Concept: A 'course of study' is like a 'construction project' . Focus is on Study Time Management and NOT personal time management. Students undertake multiple projects

How can we apply construction project management know how to complete these projects successfully?

Developed two frameworks: 1. The RESSSSSST framework and 2. The Planning and Control framework

1. RESSSSSST framework

2. Planning &Control Framework

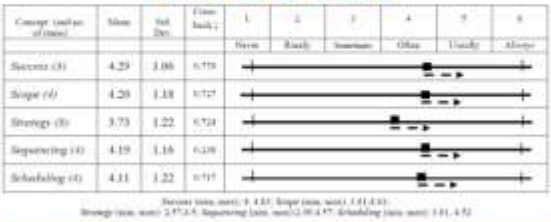
Planning: Living through a project before it happens
Control: Ensuring plans are implemented as intended

Study Agenda - Methodology

- Two research methods:
  - A Questionnaire Survey:
    - Attitudes and Behaviour
    - To assess the usage of tasks connected with –
      - Two important PM functions: **Planning, & Control**
      - Five Project Management concepts: **The 5Ss** (success, scope, strategy, sequence, schedule)
  - Case Study Exercise: Time-schedule for a design project (5wks)
    - A brief introduction to the 5S's methodology
    - Software for brainstorming project logic
    - Progress report midway

'S' Factors explained briefly	
Success	Understanding goals; setting goals
Scope	What's required to be done to achieve goals
Strategy	Tactical plans to achieve goals - incisive and intelligent; smart, focussing on things that really matter
Sequence	A logical order of activities
Schedule	Sequence in relation to TIME
Synthesise	Schedule focussing on all of the above

Results – Final year engineering students Scores for 'S' factors



Weakest 'S' factor: Strategy

An example of a strategy from study findings:

Final year capstone project: The three students that make up Group... are... [K,A &S]. They are to share the workload as evenly as possible to avoid causing any extra work for individuals within the group...[I]t would be quite helpful having 2 persons out of the 3 working on a task at the one time. This is to assist in working through any problems one may encounter whilst using the... program.... As it is set out on the Project Schedule all group members are to take part in the introductory phase of the project and also in the Calibration stage to get everybody involved in the project from the get go. However, once the Calibration has been completed the group members will pair up and work through the remainder of the project as a 2 person team. After this rotation is complete, all 3 members ... will re-run the model before moving on to write up the report'

Interim Conclusions

- **Strategy forming tasks were the least used and the weakest 'S': Develop 'strategies' for responding to multiple assignments, setting time estimates for study tasks, resource optimisation when working in groups need strategic thought.**
- **Information within university management systems should be integrated with student study time management strategies**
- **Students need to engage more frequently in planning and control tasks**

Source: Abeysekera, V. and Abeysekera, A. (2007). Developing Time Management Skills of Young Learners using Project Management Knowledge, *Annual Conference of the Australian Association of Engineering Educators*, Auckland, December

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Integrated Articulation and Credit Transfer Project

Researcher/s: Di Paez

Integrated Articulation and Credit Transfer Project

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ABOUT THE PROJECT

The overall aim of the project is to benefit stakeholders by developing seamless articulation pathways between the Higher Education and the Vocational Education and Training sectors. The project also aims to increase awareness of these pathways by increasing the level of partnership between the two tertiary sectors and relevant industry areas.

Project Aims

1.Connecting Industry to Articulation Pathways

Through the development of industry-focused articulation pathways, the industry's workforce will have a clearer understanding of not only their education and training pathway options, but future career options within the industry, thus potentially contributing to the sustainability and workforce succession planning of that industry.

2. Exploring the transferability of articulation pathway models
The Project aims to determine the transferability of both existing and new articulation pathway models to other industry and/or qualification areas. Transferability in this context could result in the reproduction of a particular articulation model in another industry area, or the expansion of an existing model to incorporate more partners from the industry, higher education and VET sectors.

3. Addressing student transition and awareness issues
Research indicates that students moving between the sectors experience difficulties in the transition from one sector to the other due to the different teaching and learning approach, expectations and assessment. It has also found that school and VET students have a low level of awareness of the articulation pathways available to them to access higher education. The Project will explore these issues and identify potential ways of addressing and reducing transition issues, as well as effective student-focused information strategies which will assist in promoting articulation pathways.

4. Information and Systems
Research has shown that considerable problems exist in implementing articulation between VET and higher education, due to different systems and procedures in use. The Project will implement a small pilot project to work through and resolve these issues and provide guidelines and principles for system improvements which can be transferable to other programs and institutions.

Research

The project is focussed on the following key areas:

•**Investigating** innovative models and pathways
•**Linking** industry to education and training stakeholders
•**Improving** student transition
•**Resolving** ongoing sector barriers to seamlessness
•**Influencing** government policy and regulation
•**Increasing** stakeholder awareness

The project team have undertaken several research activities relating to these key areas.

These activities include:

- **Literature Review**
- **Consultation Interviews** with all Queensland Universities and TAFE Institutes, as well as a selection of private providers
- **Student Awareness Survey**: all Queensland University and VET students were invited to take part in this survey which was used to determine the level of awareness students have regarding articulation and credit transfer

Project Partners

The Integrated Articulation and Credit Transfer Project was conducted in partnership with the University of Southern Queensland (USQ), the Queensland Department of Education and Training (DET), Australian Council for Private Education and Training (ACPET) and the Careers Australia Group (CAG).

The project is funded by the Department of Education, Employment and Workplace Relations (DEEWR) through their Diversity and Structural Adjustment Fund. It commenced in May 2009 and concluded in December 2011.

Queensland Government ACPET Careers Australia Group

Project Team

The Integrated Articulation and Credit Transfer Project team is made up of staff from both the University of Southern Queensland and the Queensland Department of Education and Training:

USQ
•Di Paez - Principal Project Manager, Jill Byrnes - Senior Project Officer
•Jillian Blacker - Project Officer

DET QLD
•Angela Jackson – Project Manager, Cathy Dwyer – Senior Project Officer

All resources pertaining to this research can be accessed on the IACT Project website: www.10articulation.com.au

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Self-Identified and Observed Teaching Styles of Australian Tennis Coaches

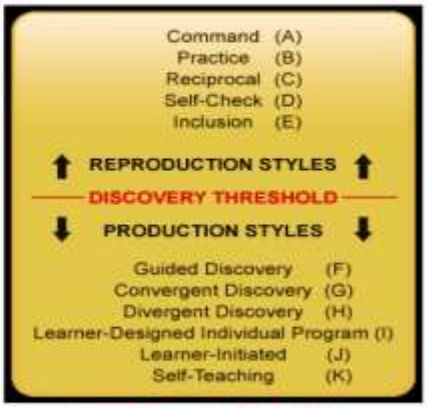
Researcher/s: Mitchell Hewitt and A/Prof Ken Edwards

Self-Identified and Observed Teaching Styles of Australian Tennis Coaches

Mitchell Hewitt and Associate Professor Ken Edwards • Faculty of Education
University of Southern Queensland • Toowoomba • Queensland • Australia

INTRODUCTION

Many educational theorists believe that there is no 'best' *teaching style*. A common principle in the discipline of coaching is that coaches should base their *teaching style(s)* on a number of considerations. It is unknown, however, what *teaching styles* tennis coaches are employing during coaching sessions and whether these *teaching styles* are associated with recommended pedagogical principles advocated by experts.This doctoral study presents the findings of research completed on the self-identified and observed *teaching styles* of tennis coaches in Australia in addition to the cognitive processes that inform the coaches' decisions to employ particular *styles*. Mosston and Ashworth's *Spectrum of Teaching Styles* (2008) was used as a basis for identifying the coaches' instructional practices.



Mosston and Ashworth's *Spectrum of Teaching Styles* (2008)

METHODOLOGY

Part A of the study employed a survey questionnaire with 208 tennis coaches in Australia to determine which *teaching styles* they reported using during coaching sessions throughout the year. Part B of the study consisted of observing 12 coaches during three 30 minute coaching sessions. An extended observational period was also performed with a selected coach for 18 hours at their local tennis club. All 12 coaches additionally participated in one interview of 45-60 minutes duration.

RESULTS

Results from the survey questionnaire indicated that coaches reported to using a range of *teaching styles* from the *reproduction and production clusters* of *The Spectrum* whilst coaching. When the recorded lessons of the observed coaches were coded, however, a total of two *teaching styles* were observed. Command Style-A was employed 11.4% of the time and Practice Style-B was implemented 73.3% of the time. These styles strongly correlate with pedagogical principles associated with direct instruction guidelines whereby the coach makes decisions about what the players are learning in addition to how and why they are learning it. The interviews demonstrated that the terms the coaches used to describe these *teaching styles* lacked consistency and accuracy and were often used interchangeably. All 12 interviewed coaches stated that their choice and employment of a particular *teaching style* did not alter as a function of the age or ability of the players they coached.

"There may not be a best way to teach, but there may be a best way to teach particular content to particular learners" (Rink, 2001)

CONCLUSION

Understanding what *teaching styles* tennis coaches are using and why they are using them establishes a baseline of information about the human learning experience while acquiring tennis proficiency. ***Such research is essential since we need to examine what coaches actually do before theorising about how coaching behaviours may be developed, extended, improved and/or changed.*** This information could be utilised in the design of coach education programs and professional development initiatives. These findings may also extend relevance into sports coaching more broadly.

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Managing Quality in Construction: Construction as Biological Cells

Researcher/s: Dr Vasantha Abeysekera, Mayur Shelke

Managing Quality in Construction: Construction as Biological Cells

Dr Vasantha Abeysekera • Construction Management • Faculty of Health , Engineering & Sciences, USQ
Mayur Shelke • Construction Management • John Holland Pty Ltd

Defects, quality defects, & defects – Received wisdom inadequate to manage construction! There is a need for fresh look at managing Quality in Construction

The synthesized concepts inspired by Cell Theory may offer an insight to achieve Quality in Construction as biological cells are almost perfect in replication of units

YES, we can identify cells in construction particularly in repetitive construction!

Two synthesized concept ... There are more...

1. **Uniform rate of cell proliferation**
2. **Embedded design:** Programme or DNA to achieve Quality in Construction by accurate Cell Replication

Case 1:

Proliferation Rate of construction cells: Production Rate and Quality Issues of Smoke Duct Slab in Tunnel

The project involved construction of smoke duct slab in Tunnel Tunnel with 3200m^3 concrete poured. Analysis of variation in concrete poured m^3/day and Quality issues is carried out

Production Rate and Quality Issues Recorded

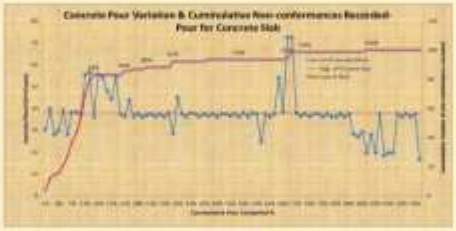

Fig. 1: Production Rate vs. Quality Issues- **Slab Construction**

Key observations:

- Non-uniform proliferation causes nearly 90% of Quality issues in first 25% of production
- Is maintaining base line production rate one of the keys to achieve Quality in Construction...?

Case 2:

Embedded Design for Construction of Apartments

- **Methodology based on lessons learnt: activity sequence optimised**
- **Striking features:**
  - **Mock-up apartment 100% complete: Similar to biological Cells - Perfect cell created and replicated**
  - **Apartment completion sequence standardised; replicated in similar cells**

Reflections

- **Unplanned production variation: Abnormal and out of control activities results in quality defects; abnormal activities - a red flag**
- **Embedded Design: Holds promise for construction; Is standardisation possible? what are its features?**
- **What are 'construction -cells'? What types of cells are there? How can these be identified? Can a perfect cell be created for replication?**

Source: ABEYSEKERA, V. & MAYUR, S. 2013. Managing Quality in Construction: Construction as Biological Cells. *CIB World Building Congress: Construction and Society* Brisbane.

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