LOW CARBON LIVING CRC

Round Table: Industry and Government Driving Nation Capacity Building

RP 3022 Policy impediments & incentives for effective education & training

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Authors

Dr Alexis Esposto and Tomi Winfree, Swinburne University of Technology

RP3022: Policy impediments and incentives for effective education and training in LCL

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Round Table Brief

Project Overview

AIM OF THE PROJECT: To create awareness about Australian and international education policy and practice, specifically impediments and incentives relative to continuing education and training provided by industry, government and vocational providers in the built environment. The project outcomes include determining the potential opportunities required to effectively develop and implement policy and programs; to increase workforce participation in continuing professional development (CPD) for energy efficiency and carbon reduction in the built environment.

Round Table Session

AIM OF THE ROUND TABLE SESSION: To engage industry practitioners, government policy makers, education providers and researchers in a co-creation session to initiate the development of an advice framework and long-term implementation guide.

BACKGROUND: In 2013, ASBEC released the Sustainability Skills Collaboration Framework. The round table looks to explore a set of impediments, incentives and international examples aimed at developing a long-term implementation framework to increase policy and program consistency, participation, and recognition of sustainability programs across the whole building process in Australia.

This DISCUSSION BOOKLET will be used to help participants gain an understanding of the project and begin a dialogue with participants leading up to the Low Carbon Living Cooperative Research Participant Forum in November 2014.

Australian Context

DEFINITION: The following continuing professional development (CPD) definition will be used only for the purposes of this project in an effort to minimise debate and establish parameters for discussion.

CPD can include participation in any activity undertaken throughout an individual's career. These might specifically include development of professional (including vocational) knowledge, skills, attitudes or experiences that help an individual to expand their knowledge, maintain up to date technical skills and/or progress their career. CPD may be:

- formal or informal (e.g. committee involvement, presentation of papers at conferences / seminars, writing/editing journal articles or teaching a colleague a new skill),
- structured or unstructured (e.g. learning new software or developing / implementing a new system),
- provision by public or private providers (e.g. TAFE, university or an industry or professional association),
- undertaken inside or outside the workplace (e.g. an internal workplace presentation or a short course provided by a university or vocational education provider),
- improving technical knowledge or competence (e.g. learning about a new product, services or process and how to apply it),
- development of values, attitudes or leadership (e.g. communication and conflict resolution),
- improving workplace effectiveness (e.g. developing/implementing a new way of doing business),
- helping, influencing or leading others (e.g. mentoring activities),
- an option to support changes in a career or career advancement, or
- to serve the community (e.g. participation in industry and volunteer committees or a local or international group).

Introduction

The sustainable built environment requires a workforce that possesses a set of skills, knowledges and attributes that are flexible and adaptable enough to meet the rapidly changing needs and challenges of an industry sector facing continuous transformational adjustment, change and uncertainty arising from a progressively complex,

and uncertain environment (North, 1995; Esposto and Alshamery, 2013; and Esposto and Tohme, 2010). A central issue to meeting this challenge is the alignment of educational, industry and policy makers towards the creation of an educational system that can respond to the needs of a shifting and fluctuating industry environment.

The integration and implementation of effective sustainable built environment education policies has been identified by industry, government and community members and leaders. To this end long term policy responses require an understanding and acceptance of the need to tackle conflicting values and competing interests in a spirit of cooperation, dialogue and experimentation that will reduce sectoral complexity and uncertainty (Fien and Wilson, 2014). Furthermore, a long-term vision that ensures continuity of foresight, collaboration and endurance in order to achieve long term positive and adaptable policies is vitally required with a view to providing prompt action. Such a set of policy responses will create a climate of certainty and confidence for the future of the industry.

The Problem at Hand: Synchronicity Deficits in the Australian Built Environment Education & Training Sector

The last five years has seen the proliferation of reports (e.g. Pitt and Sherry 2014; Winfree et. al., 2013 and Fien and Guevara, 2012 amongst others) highlighting deficiencies in the delivery of adequate and coordinated education, training in the built environment sector. Central to these deficiencies is the lack of synchronicity and alignment in educational policy planning and development between key agents, namely, industry bodies and government education providers. Resolving these shortcomings and deficiencies are extremely complex and have been described as 'wicked problems'[1] which by their own nature are difficult to resolve and their persistence exhibit high economic and social costs (Commonwealth of Australia, 2007).

A major impact of these industry wide irregularities, mismatches and asymmetries is the raise of a variety of substantial industry wide costs. These costs fall into three main categories, namely, productivity, efficiency costs and transaction costs (Hirschey, 2009, p. 715). These costs include coordinating expenses, legal costs, poor workmanship costs arising as a result of deficient and poor training, project completion delays, lack of consistent regulatory practices costs and other related expensive productivity costs (Pitt and Sherry, 2014). One such source of costs in LCL occur when

> *... the standard of work is questionable, potentially defective or not quite meeting the owner's expectations. In the 2011-2012 financial year there were 4,726 complaints made to the Queensland Building Services Authority (BSA) for defective or in-complete works (Levy, 2014).*

The issue of poor workmanship has a negative impact on both project completion and increasing efficiency and transaction costs. For example, as early as 2002, Love found that rework resulting from poor workmanship "... contributed to 52% of a project's cost growth and that 26% of the variance in cost growth was attributable to changes due to direct rework" (p. 18).

Many of the issues discussed above would be diminished if effective regulation by government authorities were closely monitored and enforced. Pitt and Sherry (2014) argue that

> *Overall, we formed the view that regulators tend to see energy efficiency aspects of the Code as relatively unimportant, and perhaps a distraction from more important matters. This may in turn reflect a consistent view that governments are uninterested in energy efficiency matters, combined with resource constraints. The predominant concern of the policy advisors appeared to be managing the overt opposition to higher standards (or other regulatory reforms) by industry groups, and the consequent lack of support for regulatory change from governments (p. 40).*

The danger for the industry is that the persistence and accumulation of these costs puts the long term survival and sustainability of the industry at serious risk (BEIIC, 2012). One way of responding to this challenge is by upgrading and updating educational programs in vocational and higher education. As such, it is imperative to respond to what Dalton et al. (2011) identify as major labour market bottlenecks in relation to the housing sector:

[1] A wicked problem is one that is characterised by its high level of resistance to resolution and exhibits the following characteristics: difficult to define and unstable by nature; possesses interdependencies which are multi-causal; attempts to provide solutions often lead to unforeseen consequences; solutions are unclear and are socially complex; and they exist within and between organisations. Attempting to resolve wicked problems requires behavioural changes, and high levels of cooperation, consultation and compromise (Commonwealth of Australia, 2007, pp. 3-6).

- Worker supply shortages in the housing sector labour force are associated with the national resources sector employment and the broader construction industry and are compounded by a persistent gender imbalance that effectively excludes a large potential workforce.
- Skill levels and their utilisation vary across the housing sector labour force, as within the broader construction industry, and this has implications for quality and productivity of housing production. The availability of skilled workers is associated with the structure of work and the way labour is utilised within the industry.
- A major long-term education and training issue has been the high proportion of apprentices that do not complete their apprenticeship. This is associated with a lack of appropriate supervision in the workplace, poor training, bullying and abuse and low wages. There is also evidence of low levels of investment in continuing workplace training (p. 59).

To overcome the above challenges, six key deficiencies have been identified which manifest themselves in various ways.

Round Table Discussion

Six Impediments and Disincentives

There is no shortage of information or training programs for energy efficiency and carbon reduction. However, the real challenge is that the built environment sector is suffering from impediments across professional and trade CPD policy and programs and alignment with sustainability policies. The six impediments include:

1. INDUSTRY FRAGMENTATION: Disjointed and disunified policy and programs within and across groups;
2. DISAGGREGATED CPD: Sub-sector specific programs are disconnected from the whole process fostering inconsistent language & communication methods and prioritization of opportunities on projects;
3. LIMITED MUTUAL RECOGNITION OF PROGRAM PROVIDERS: To jointly learn from industry experts across the construction process to stimulate cross sectoral communication and collaboration;
4. LACK OF CPD REQUIREMENTS: Low CPD requirement aimed at energy efficiency and carbon reduction or a low uptake amongst trades and building professionals;
5. A CHALLENGE TO TRADITIONAL INDUSTRY PRACTICE: Significant advancement of environmental sustainability within national vocational education and human capital adaptation to emerging technologies; and
6. LOW RESEARCH AND DEVELOPMENT COOPERATION & IMPLEMENTATION: Poor cooperation between industry and the university sector or insufficient uptake of findings.

Discussion Questions

1. Are there other impediments or incentives not yet identified?
2. What evidence supports our list of impediments (or otherwise)?
3. What are the exceptions? Provide examples of Australian or other international CPD best practice.
4. What policy strategies would be good for Australia to overcome these impediments or foster incentives?
    - Who should be responsible?
    - How can others contribute?
    - What are the key actions requiring implementation in the:
        - short-term (now -2017),
        - medium-term (2017-2020), and
        - long-term (beyond 2020)?

Table 1 A Leadership Matrix for Education Cooperation in the Australian Built Environment

Concept	Problem	Impediment	Opportunity	Incentive	International Best Practice
Industry Fragmentation	Education programs evolved in a fragmented and disjointed manner.	Silo cultural paradigm. Uncoordinated and disjointed training courses. Lack of communication and coordination between agents.	Creation of partnerships and joint ventures. Creation of state of the art educational programs.	Increased industry competitiveness. Creation of partnerships and joint ventures.	United States of America (USA) Example Cooperation between government sector, business representative bodies and educational representatives to readily adapt to industry challenges and needs.
Disaggregated CPD	Workforce needs to adapt to rapidly changing industry demands.	Incoherent and uncoordinated education policy framework to transition to LCL future.	Improve technical and service efficiency within industry and education sector.	Gain competitiveness locally and internationally. Access to emerging and developing economies transitioning to LCL future.	USA Example: Creation of "The American Job Center Network site" which provides a single access point for key federal programs and critical local resources to help identify CPD training programs.
Limited mutual recognition of program providers	Consistency in language, intent and prioritisation of opportunities to reduce energy and carbon.	Workforce confusion and inefficient education provision and unnecessary duplication of effort.	To jointly learn from industry experts across the construction process to stimulate cross sectoral communication and collaboration.	Collective strengthening of education provision and fostering a collaborative industry culture.	USA Example: Mutual recognition of participation in programs accredited by the American Institute of Architects, US Green Building Council, Building Performance Institute, Energy and the Energy and Environmental Building Alliance and other like providers.
A challenge to traditional industry practice (Human capital adaptation to technological change)	Skill shortages due to technological change and ageing population. A younger newly trained workforce challenging traditional methods.	Lack of leadership at government, education and industry level. Low acceptance and implementation of new methods, products and technology.	High levels of human capital. Skill transferability and flexible adaptation to new economic demands and conditions.	Able to adapt and implement new technologies. National industry leader. International best practice leading to access of international markets.	USA Example: Comprehensive and readily accessible industry competency and CPD training packages meeting LCL industry needs.
R & D (Low research and development cooperation & implementation)	Incoherent and uncoordinated R&D policy.	Need to improve current cooperative models between industry and University sector. Promotion and dissemination of industry R&D to enable wider adoption of outcomes.	Creation of collaborative culture. Ease of knowledge transfer and enhancement of innovative culture.	Model for international best practice will lower transaction costs. Access to international markets. International knowledge transfers and development of new patents.	USA Example: R & D cooperation in Building & Construction Design research and collaboration to enable key industry groups to promote and engage the industry to stimulate participation in trusted organisations. (US Dept. of Energy and the National Association of Home Builders.)
Bringing things	No formal national industry wide	Low uptake of CPD to enable the workforce to	Development of a synchronised	Model of International Best	USA Example: Creation of America Job Center aligning 6 US federal

together Lack of CPD requirements	action plan. Low level of requirements for CPD to contribute to carbon and energy reductions.	efficiently transition to a low carbon built environment. Opportunities being negated due to a lack of understanding of intent.	National Industry and Training Action Plan	Practice. Lower educational costs. Efficient delivery of training and retraining programs.	agencies, industry and educational bodies through partnership with key industry associations to promote and engage the workforce.

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