

# Forging green building literacy



## LETTERS

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THE Organisation for Economic Co-operation and Development (OECD) has estimated that globally, buildings account for almost one-third of the world's greenhouse gas (GHG) emissions.

And according to the United Nations Environment Programme (UNEP), buildings consume more than 40% of the world's energy, 25% of its water and 40% of its natural resources. Buildings are also hugely responsible for the generation of more than 45% of global waste.

These staggering figures magnify the importance of building green, of which the fundamental goals are to reduce the social and environmental impacts engendered by the built environment while significantly improving the building occupants' quality of life.

To this end, the normative green building promoters have been focusing on improving the construction process (i.e. less construction waste), optimising building operation and maintenance (i.e. better energy and water efficiency, improved indoor air quality) as well as incorporating life-cycle considerations in building design (i.e. re-purposing and deconstruction at the end of a building's lifespan).

Unfortunately, this knowledge is still pretty limited to people within the building industry, specifically among construction professionals, and those outside this loop are very unlikely to grasp the many benefits of building green. This glaring gap can be narrowed down by improving the green building literacy of future generations through education, in which simple pedagogies can be embedded into the teaching syllabus to stimulate the students' interest in green building.

So, what can be done to promote green building education in Malaysia? For a start, green building education needs to be recognised as an important element in STEM (Science, Technology, Engineering, Mathematics) education. While common in built environmental and engineering professions, green building education is scarce for the general public. Nevertheless, it has been widely posited that a green building literate public will better support the initiative in order to enhance the sustainability of construction activities.

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A recent study by prominent green building researcher Laura Cole has identified three major features of green building literacy that can be adopted as an educational framework for the public. These are (i) green building knowledge and skills, (ii) affection concerning green building practices, and (iii) behaviours toward green building.

1. Green building knowledge and skills: This is the fundamental level of green building literacy for the general public. This feature is further divided into three groups, namely factual knowledge, conceptual knowledge, and procedural knowledge. Factual knowledge deals with the understanding of various components in green building designs, such as solar panels, recycled content materials, dual-flush toilets and energy saving bulbs.

Conceptual knowledge deals with the understanding of relationships between elements within a green building as well as ways in which these built features interact with the local communities and local ecology; for instance, how operating windows affect cooling systems and the risk of glass facades for migratory birds.

Procedural knowledge emphasises the skill elements, such as analysing the performance of a green feature and making effective design choices. Simple examples would be to select eco-friendly furniture and knowing the correct ways to operate window shades to reduce solar gain under the hot afternoon sun.

2. Affection concerning green building practices: This describes the attitudes and values that influence a person's interest in green building and subsequently his or her adoption of green practices. Affection relates to emotion, feeling or sentiment. Just as an environmentally literate individual has a well-developed set of environmental values, so, too, does a green building literate person. Having green building literacy will develop attitudes and values that shape knowledge and become a basis for environmental action.

A person's sense of responsibility plus his or her behavioural willingness is vital in developing sensitivity towards the environment. Moreover, a sustained attachment or exposure to green buildings will likely result in positive influences of attitude and behaviour. Having said that, it has to be recognised that attitudes and values are unlikely to change immediately – it takes time.

Furthermore, the curriculum for green building education needs to consider the affective dispositions of students in designing a suitable starting point in the lessons.

Positive emotions allow people to broaden their scope in constructing intellectual resources. In this regard, green building education needs to be imbued with positive learning experiences.

3. Behaviours toward green building: The goal of green building education is to inspire actions that advocate the green building movement. Ultimately, it is to bring about change in the populace's behaviour. Therefore, this third and most important feature deals with propagating green building practices underpinned by collective participation in sustainability behaviours in and around green buildings.

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The dissemination of knowledge should start from the personal level, moving up towards the family and community, and eventually transmuting into a governmental movement. For a start, schools can encourage students to turn off lights, shut down computers, take the stairs instead of the elevator, and so on. Likewise, sustainability clubs that promote energy saving on the campus should be strongly encouraged.

Beyond the classrooms, students can be taught to engage in green building research and work with local legislators to solve energy issues in public buildings. In this way, green building education can link policy lessons in the classroom to the broader social context. The impact on students is twofold. Firstly, students build literacy on how the built environment is structured to either hinder or support environmental actions, and secondly, students learn how green building literacy affects the environmental performance of their school.

At home, students can be tasked to work with family members in green building practices such as recycling, composting and a myriad of other simple practices that either improve energy efficiency or reduce the environmental impact.

From knowledge and skills development to curriculum design that incorporates affective dispositions to encouraging behavioural changes, educational leaders are urged to embrace the advantages of green building and other cutting-edge technological advancements to transform old ways of living and to better address the United Nations Sustainable Development Goals – all through a rethinking of our education. Significantly, the green building educational framework exists for these leaders to begin the enculturation of green practices.

Building strong green building literacy through a systemic education approach and cultivating a highly adaptive culture can set a community of any size or background on the path to sustainable economic growth. We are undoubtedly at the juncture of one of the most exciting transformations of our lifetime.

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