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Heartware as a driver for campus sustainability: Insights from an action-oriented exploratory case study

Zeeda Fatimah Mohamad [a, b, *], Siti Norasiah Abd Kadir [a, b], Affan Nasaruddin [a, b], Nobumitsu Sakai [a, c], Fathiah Mohamed Zuki [a, d], Hazreena Hussein [a, e], Abdul Halim Sulaiman [a], Mohammad Shahrul Amin Mohd Salleh [a]

[a] Water Warriors Campus Sustainability Living Lab, Sustainability Science Research Cluster, University of Malaya, Kuala Lumpur, 50603, Malaysia
[b] Department of Science & Technology Studies, Faculty of Science, University of Malaya, Kuala Lumpur, 50603, Malaysia
[c] Division of Environmental Engineering, Graduate School of Engineering, Kyoto University, 4 Kyotodaigaku-Katsura, Nishikyo-ku, Kyoto 615-8540, Japan
[d] Department of Chemical Engineering, Faculty of Engineering, University of Malaya, Kuala Lumpur, 50603, Malaysia
[e] Department of Architecture, Faculty of Built Environment, University of Malaya, Kuala Lumpur, 50603, Malaysia

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ABSTRACT

Literature on campus sustainability transitions is mainly focused on the hardware and software approaches, with less attention on the so-called 'heartware' approach. Heartware refers to the internal and voluntary motivation of the campus community itself to establish long-term collaboration and collective efforts for sustainability. The paper addresses this gap through an action-oriented exploratory case study research in applying the heartware approach for a long-term water conservation initiative at the University of Malaya campus in Malaysia. The case study research employed a triangulation of five types of data sources (documentation, archival records, direct observation, physical artifacts and participant observation) and two analysis techniques (iterative explanation building and time-series analysis). The case study demonstrated that the heartware approach can be an essential driver for campus sustainability, with suggestions on three ways it can be exercised: (1) Community-shared values that can inspire collective and voluntary action on campus; (2) Role of volunteers within the campus community, at various levels of power, in galvanizing efforts; (3) Heartware driven adaptive governance - where the campus community is able to self-maneuver in mediating conflicts that can possibly block long term action. The paper concludes that there can be aspirational ways to view our campuses: as a living community with concerned citizens, rather than just a complex organization to be managed. This might open up more rooted solutions for campus sustainability than what is currently available.

1. Introduction

Sustainability is about how communities at various scales of society envision and pursue social, economic and ecological well-being. This includes the campus community. As highlighted by the The Association of College Unions International (2008), "community is a broad vision for campus life that allows all groups and individuals to learn and develop to their best potential in a challenging, yet safe environment" (Harrington, 2014). Although this sense of community is increasingly taking a back seat in the age of university rankings and corporatisation (Weingart and Maasen, 2007), it is nevertheless encouraging that a number of scholars have been working to revitalize this perspective as a healthy counter-balance to prevailing trends (Boyer, 1990; McDonald, 2002; Willett, 2013; Willits and Brennan, 2015).

From a community perspective, campus sustainability as an area of sustainability research has a crucial role to play in articulating the ways in which campus communities are crafting a sustainable vision of the future, deliberating on the visions and values they represent and exploring the potential pathways that might realize such a vision (Miller et al., 2011). It is a vital area of research considering the significant role of universities in shaping worldviews, training of human capital and generating new knowledge for sustainable development (Cortese, 2003; Stephens et al., 2008; Ferrer-Balas et al., 2010; Stephens and Graham, 2010; Leal Filho,

* Corresponding author. Department of Science and Technology Studies, Faculty of Science, University of Malaya, 50603 Kuala Lumpur, Malaysia.
E-mail address: zeeda21@um.edu.my (Z.F. Mohamad).

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2011; Karatzoglou, 2013).

In line with this realization, a number of universities worldwide have been engaged in transforming their campuses to become more sustainability-oriented. Based on past review papers by Lozano et al. (2015) and Karatzoglou (2013), areas of transformation include education, research, community outreach, campus operations, assessment and reporting, institutional policy and framework and on-campus experiences. More recently, there is a trend to use universities as the loci for Living Labs (Evans et al., 2015) and as a micro-level exemplar for sustainability transitions (Stephens et al., 2008; Stephens and Graham, 2010).

Traditionally, literature on campus sustainability has been mainly focused on the management of structured processes which have resulted in the proliferation of strategic management guidelines (ISCN, 2016), toolkits (Disterheft et al., 2012; UNEP, 2013), handbooks (IARU, 2016), tools (ULSF, 2008), rating systems (AASHE, 2015), ranking systems (Suwartha and Sari, 2013) and framework proposals (Lozano, 2006; Comm and Mathaisel, 2003) to guide campus leaders in facilitating their sustainability journeys. The emphases are mostly on hardware and software approaches - hardware in the form of scientific and technological solutions, and software in the form of strategic management of human resources and institutions, including policy and legislation.

Fewer authors have dealt with what we refer to in this paper as the 'heartware' approach to campus sustainability, which pertains to the internal and voluntary motivation of the campus community itself to establish long-term collaboration and collective efforts for sustainability. In this paper, the authors proposed that the heartware approach can be used to provide a more organic foundation for campus sustainability efforts - in addition to the more structured hardware and software approaches referred to earlier. Thus far, the heartware dimensions of campus sustainability were seldom highlighted, although the role of local communities as a driver for sustainability have been generally recognized and promoted since Agenda 21 was launched in 1992.

This paper was designed to address this gap through a review of the subject, plus via concrete empirical insights from the authors five years' experience in applying heartware strategies as a part of the campus sustainability efforts at the University of Malaya (UM). The main objective is to investigate the extent to which the heartware approach can drive the process of campus sustainability transitions within the context of a Malaysian campus. It is based on the broad research question on whether a heartware approach is relevant for campus sustainability? If yes, how so and why?

The work was inspired and developed from our initial work on the so-called 'heartware' governance approach for integrated watershed management under the 'Asia Core Programme on Risk-Based Asian Oriented Integrated Watershed Management' (ACP-IWM), a bilateral research consortium between Malaysian and Japanese researchers. The approach was later adapted to Water Warriors, a campus sustainability grassroots movement on water conservation efforts at the UM campus since the year 2013. The paper describes how our experience in applying this heartware approach has been a strengthening factor in resolving water conservation issues in the university, and discusses important lessons learned to date. These theoretical and empirical insights can hopefully provide renewed appreciation on heartware (in addition to hardware and software approaches) as an essential ingredient for the long-term sustainability of campus sustainability efforts.

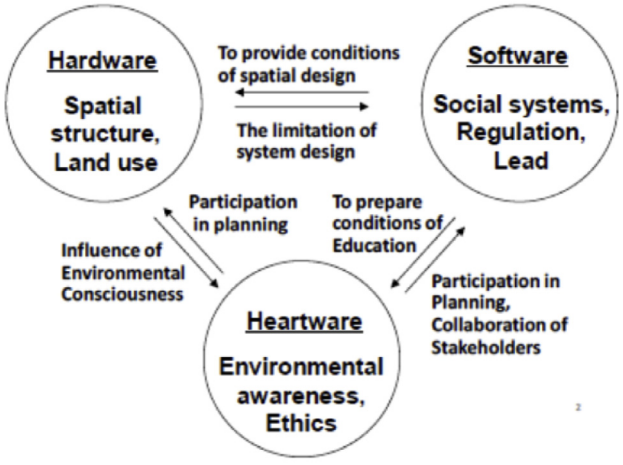
This paper consists of six sections. Section Two reviews the concept of heartware from two perspectives: a review on how the concept of heartware was originally defined and evolved from the literature on environmental planning and lake management (subsection 2.1) and how far heartware can be applicable and has been addressed in the field of campus sustainability (subsection 2.2). Section Three explains the research approach and its implementation. Section Four describes the key empirical findings, followed by discussion in Section 5. Section 6 concludes the paper.

2. Heartware as a driver for campus sustainability

2.1. Heartware as an emergent concept in watershed conservation

The paper's perspective on 'heartware' was derived from the introduction of the concept by the co-chair of the governance group[1] of the ACP-IWM consortium who was an expert in Integrated Lake Basin Management (ILBM). ILBM is a governance framework to achieve sustainable management of lakes and reservoirs through gradual, continuous and holistic improvement in the governance process (Nakamura and Rast, 2011). In this approach, good governance may require plans that go beyond conventional scientific analysis. While the importance of science in preserving the natural environment cannot be disputed, the sustainability of a lake watershed may not depend on scientific and technological knowledge alone, but also on carefully dealing with the diversity of non-tangible values that humanity places on nature and their complex relationship with each other. To this end, the budding notion of 'heartware' began to receive greater attention in the practice of ILBM over the years.

In terms of its genesis, the term 'heartware' was inspired by Harashina (1996) where it was initially used as the third leg of effective environmental planning for cities; in addition to hardware and software approaches (Fig. 1). He asserted that effective environmental planning requires dynamic interaction and overlay between three components - hardware, software and heartware. Hardware consists of the physical fabric of a city, i.e. land use and spatial structures. Software consists of sets of rules in the form of social system/institutions, regulations and laws. Heartware is an emotional mechanism – the behavior and conduct of individuals - which determines their needs, wants and wishes and the process by which their interaction with the surrounding environment takes place. He emphasized that heartware is driven by one's



Source: Harashina, 1996

Fig. 1. The three types of wares in environmental policy measure. Source: Harashina (1996).

[1] The consortium was divided into four main groups: (1) Hydrology (2) Water Quality (3) Risk Management (4) Governance.