EDUCATION AND SUSTAINABLE DEVELOPMENT: A NEW CONTEXT FOR DESIGN

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ABSTRACT

The subject matter of design is the one that concerns itself with change and alternative resolutions (Buchanan, 1995). Increasingly design problems are issue-led with an emerging meta-issue of sustainable development (SD) (Fuad-Luke, 2009). This paper discusses the issue of SD in the context of public services in the UK as an opportunity for design. As there is a great diversity in the context, organizational complexity, design and delivery of public services, the focus is on the UK primary education. UNESCO (2009) identified education to be critical in promoting SD and for schools to become 'centres of expertise and innovation' in the area. A non mandatory goal from the government and the lack of clarity in definition of SD (Bourn, 2005) leaves schools without strategic incentive for change. The preliminary findings from the interviews of six case studies presented in this paper will seek to explore and identify characteristics and current approaches to SD in the UK schools. The findings will become a foundation for discussion of the role of design within this new context.

INTRODUCTION

Sustainable development (SD) is one of the main challenges of the 21st century which concerns all areas of human activity (Fuad-Luke, 2009). In his theory on Gaia, James Lovelock (2006) establishes the notion of planet earth as a living organism which human kind currently inhabits along with other species. One of the main characteristics of the planet is its tendency to keep constant conditions for a terrestrial life through its processes of regulation. If current development of the human species with its rising population and dependency on the earth's resources due to its lifestyle continues to grow, it will inevitably threaten the planet's homeostasis and have a destructive outcome for human population as Gaia will seek to restore itself. SD then is the notion not so much about saving the planet but a process of preserving the earth's capacity to support human life (Chick and Micklethwaite 2011) and cultivating social conditions to support human well being (Thorpe 2007).

Sustainable development presents an activism landscape for design (Fuad-Luke 2009). In the last 30 years, design has been evolving to rise to the sustainability challenge and the benefits gained

from it span from product improvement, to redesign of products, to function innovation, and system innovation of both products and service systems (Bhamra and Lofthouse 2007). At the same time designers began to perceive design or redesign of services no longer as an end in itself but as an engine for wider societal transformations (Sangiorgi, 2011).

Within the area of services, design has been expanding into the areas of public services, so far the focus has been in the area of national health services.

This paper brings attention to a different kind of public service - education, and its new role in societal transformation towards SD future. Drawing on the preliminary findings from a PhD research at Loughborough University, UK, on education for SD in the UK primary schools and theories of organisational development, education and SD are discussed as a new opportunity for service design.

EDUCATIONAL INSTITUTIONS AND THEIR NEW ROLE

At the UN Conference on Environment and Development in 1992 at Rio, amongst other institutions, institutions of formal education including schools have been recognised as critical
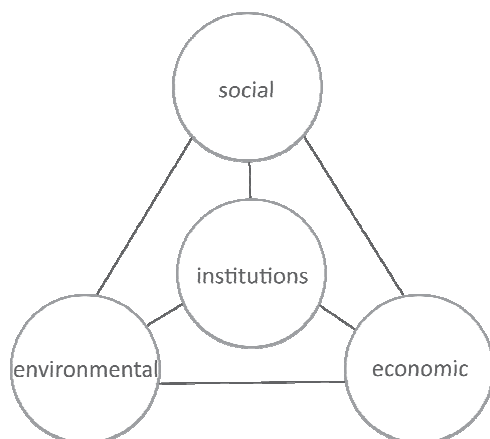
agents in the move towards SD. This is illustrated with the sustainability prism (Fig. 1) that highlights the participatory role of institutional dimension by placing it at the center of the prism and connecting it to the environmental, social and economic dimensions of SD. The new role of educational institutions was described by UN as

promoting SD and improving the capacity of the people to address SD issues.

Fig. 1 (Spangenberg, 2002)

This new role necessitates a *deep change* in the way things are done. In schools this means moving away from the model of production line to one that is more engaging and is engaged in actions relevant to everyday life (Reed, 2009). The current vision of education for SD is beyond just creating awareness on ecological issues, climate change, or how to manage environment. It encompasses social, environmental and economic considerations, building capacity to think critically about what experts say, to test SD ideas, and to explore contradictions inherent in sustainable living (Scott and Vare, 2007). Education then is moving away from just transmission of predetermined facts, skills and values to transformative learning where knowledge and understanding are co-constructed within a social context (Van Poeck et al, 2009). Schools are perceived as places where children, adults, and the community interact and learn together through a process of social learning, where everyone is an active participant in co-creating a sustainable future in what is known as a whole school approach (Henderson and Tilbury 2004). The discourse on schools education and SD has focused on 'a vision' for this new role in education, while research shows that in practice the change is very difficult and only occurs in small amount of pockets of good practice, there is also very little guidance on the issues of intentional change in schools towards SD.

EMPIRICAL STUDY

Introduction

The initial question that the research sought to answer was what are the approaches towards education and SD that schools engage with in practice and how does it compare with the view of education and SD in the schools that do not engage with it but would like to?

The scope of the research was limited by choosing to work with primary schools in the UK where

education is provided as public service.

Six schools have been selected for this research. Set 1 was selected as it was perceived by the government, external assessors, and the local community as schools moving towards SD and Set 2 was perceived as not being involved with sustainable agenda but having an interest in engaging with SD. The current findings are based on preliminary analysis of six interviews with the headteachers of the schools.

Findings

Both sets were able to formulate a definition of SD yet definition of the Set 1 had a more in depth and holistic definition covering three sustainable dimensions, in relation to the school, while Set 2 focused mainly on the environmental dimension.

Both sets' overall aim was to improve what the school offers and to create a positive impact on the children, while Set 2 perceives SD issues as important but not as immediate, Set 1 perceives SD and its issues at the centre of its improvement plan. Set 1 also integrated SD into its ethos, at the core of the schools' mission statement while in the Set 2 SD was found partly in the ethos or was not mentioned at all. Schools in Set 1 also perceive themselves as the schools that are moving towards SD and contributing to its future.

Both sets are involved in experiential learning and real life projects, pedagogy that is associated with SD and education (Vare and Scott, 2007). However, Set 1 seems to have more focus and more development in this pedagogy noting that the results include wholesome children who reach the standards of the government, while Set 2 perceives it to be integrated into a larger set of pedagogies practiced within the schools.

Both school sets have shown what this paper calls 'level of activity' within SD with level of activity in Set 1 being much higher. Level of activity refers to an existence of visible actions and/or artefacts where issues of SD environmental, social, and/or economic, are embedded. For example, it may be shown through projects that the school is involved in, operations or curriculum that it undertakes, or rewards it receives. The level of activity does not only refer to the amount but also the complexity, depth and connectivity of SD.

While values of SD exist in the leaders of both sets, they are prioritized and acted upon by the leaders of the set one. Here headteachers also proactively create support for these values within their stakeholders in their school and outside of it. As a result SD leadership in the schools comes both from the headteacher and is distributed amongst other stakeholders.

Schools in set one have implemented changes to the structure of the school to raise the profile of SD and to further embed it. For example establishing new sustainable leadership roles within the staff or creating eco-clubs for the students and staff to participate in.

The conclusion of the preliminary analysis at this stage was a development of the concept that schools in set one are proactively developing their 'sustainable school culture'.

ORGANISATIONAL THEORY

While literature on education and sustainable development mentions culture and values, there is little attempt to understand what it might mean for the schools. If however, we take position of Davidoff and Lazarus (2002) and perceive schools as organisations then we can use the framework based on variables and their interconnectivity to better understand it as such and its relation to change. The components of the framework include school culture, identity, strategy (organisation and curriculum development), structures and procedures, technical support, human resources, where the organisation is
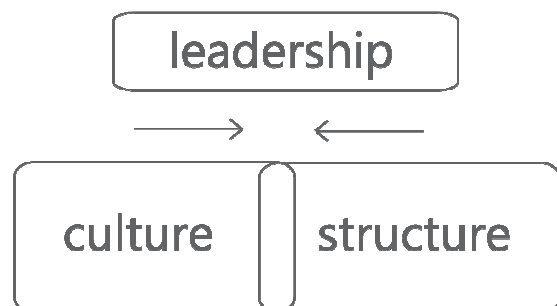
located within micro, macro and global contexts.

Considering a sociological/anthropological perspective on organisations rather than managerial, Bate et al. (2000) claim that significant organisational change may be realised when three most fundamental dimensions: culture, structure, and leadership are considered (See Fig 2).

Fig 2. (Bate et al., 2000)

Defining dimensions: organisational culture

The concept of organisational culture has been developed by Schein as a theoretical utility in drawing attention to the holistic aspect of group and organizational phenomena. (Schein, 1990) Culture is what group learns over a period of time through shared history and shared experiences by solving problems of external adaptation (example: core mission, primary tasks of the organization) and its problems of internal integration (basic concepts of time and space, the group boundaries criteria for inclusion).This learning is at once a behavioural, cognitive, and an emotional process. As a result of the organisational learning the culture may manifest itself on three levels: at the deepest level are shared assumptions that represent taken-for granted beliefs about reality and human nature. These assumptions determine the perceptions, thought processes, feelings, attitudes, espoused values, and overt behaviour of organisation; values are social principles, philosophies, goals and standards considered to have intrinsic worth that organisation espouses to. (Hatch, 1993) "Assumptions often start as values, as they stand the test of time and learning, they gradually become taken for granted and are no longer questioned, becoming less and less open for discussion" (Schein, 1990). Artefacts are the visible, tangible, and audible results of organisational activity grounded in values and assumptions (Hatch, 1993). If one is to create change in culture this gives an idea of what needs to be changed.

Defining dimensions: organisational structure

The organisational structure may be defined as a social and functional structure. Functional structure focuses on demarcation of positions, development of rules and procedures, and

prescriptions of authority. Its purpose is to achieve control over organizational performance (Ranson et al., 1980) and it is developed in such a way as to ensure that aims and goals of organisation are pursued, providing the basis for planning and evaluation. The prescribed framework of organisation also holds a more organic, emergent social structure where people interact, come together, and manage day to day situations. (Bate et al., 2000).

"Organisational structure may be perceived as a complex medium of control which is continuously produced and recreated in interaction and yet shapes that interaction" (Ranson et al. 1980) reflecting and perpetuating culture of the organisation. To reconstruct organisation, consideration to both social and functional structures needs to be given.

Defining dimensions: organisational leadership

Leadership is a property of organisation, and is "realized in the process whereby one or more individuals succeeds in attempting to frame and define the reality of others" (Smircich and Morgan, 1982). While leadership can be defined through formal roles and therefore institutionalised, it is a social process that occurs on all levels of the organisation, and takes form continuously through communication, inspiration, and dialogue throughout the organization (Bate et al. 2000). Therefore leadership occurs not only at the top, but is spread across the organization, and "is an integrative essence through which culture and structure are realized and reinforced and changed" (Bate, Khan et al. 2000).Changing organisation implies not only paying attention to the leadership on the top but also lead roles across the organisation.

APPLYING ORGANISATIONAL THEORY TO EMPIRICAL STUDY

Organisational theory is a conceptual framework that provides a lens for the next step in the analysis, providing a greater meaning to the empirical data and understanding of 'sustainable school culture' concept. Using the lens the data in Set 1 is further separated into three dimensions of culture, structure and leadership.

Within the dimension of culture the findings could be divided into assumptions, values, and artefacts:

Data from the Set 1: Culture

Assumptions :
1. Man and nature are in symbiotic relationship,
2. man's awareness about nature and affinity with nature leads to action that brings such symbiotic relationship to fruition,
3. school has a role to play in bringing about sustainable change.

Values:
1. Children are at the center of everything that school does,
2. school seeks to have sustainable impact on the school and global community and to be part of the sustainable movement,
3. curriculum may be enriched through sustainable development issues.

Artefacts:
1. Exploring fair-trade in the classroom as well as becoming a fair-trade school,
2. behavioural eco-codes developed and distributed amongst the classrooms.

Data from the Set 1: Structure

Functional structure:
1. Schools have established new roles for the staff such as appointments of sustainable school coordinator or expanded on the existing roles,
2. participatory structures of the students, eco councils are established gaining voice not only at the whole school meetings or assemblies, but also at the strategic meetings with the governing bodies,
3. clubs based on sustainable issues are established to bring focus to the issue, such as energy club, animal club, and involve participation of the students, parents, and the staff.

Data from the Set 1: Leadership

Formal leadership:
the leadership on sustainable development within the schools is distributed amongst many stakeholders rather than being in the hands of one or two senior managers. However, the evolution of such structure is usually the result of the headteacher and senior management prioritizing and giving importance of the values of sustainable development in the first place.

INTEGRATIVE FRAMEWORK OF ORGANISATIONAL CHANGE

Following the integrative framework of organisational change by Bate et al. (2000), which notes that change in organisational culture alone will not create a lasting result, whereas attention to organisational restructuring alone will produce same people differently arranged but with the same set of problems, the preliminary results of the study suggest that schools that wish to move towards sustainable development need to undergo a *transformation* that integrates culture and structure as well as considers organisational property of leadership. In this way change will occur not only in the form of the organisation but also in the tacit patterns of thought, action, and interaction that define its cultural essence.

OPPORTUNITIES FOR DESIGN

Design has been developing its capacity to facilitate change in organisations including public sector and communities where design process and skills form an approach to undertake most pressing economic, social and environmental issues. This development may be observed in the discipline of service design where services are no longer perceived as an end in themselves but are considered to be an engine for wider societal transformations (Sangiorgi, 2011).
This research with its focus on education sector and its role in sustainable future presents an opportunity to further investigate the role of design in transformation of public sector as a way to build a more sustainable and equitable society.

The research on service design and societal transformation shows that the focus so far has been on two types of approaches: working within organisations to introduce design methods and suggest new service configurations, or acting outside the system to generate radically new service solutions (Freire and Sangiorgi 2010). The research related to the 'inside out' approach has

emphasised the role of co-production and collaborative solutions, where the emphasis is on changing the role of user in co-production of services with examples in public sector mostly relating to health. The research related to the 'outside in' approach, has been investigating examples of ordinary people solving daily problems that result in the sustainable solutions (Sangiorgi 2011).

This work, following theory of organisational change by developing shared knowledge, values, and experiences of those within the organisation will seek to build upon the methods of 'inside out' approach with the focus on co-production and collaboration. However, in addition to that the transformation is within the educational sector and is grounded in the need to develop sustainable society which creates a new context for transformation of public service organisation from within.

As discussed earlier in order to achieve deep change within organisation, attention to culture of the organisation, its assumptions, values, and artefacts as well as its structure both social and functional is required. Current service design research while articulating methods and tools for interventions and change, has not yet been discussing the design inquiries that uncover and transform organisational assumptions and infrastructure as well as assess its long term impact on the service. This research will seeks to provide a platform for such discussion.

CONCLUSION

Sustainable development was presented as a meta objective of 21st century. In response to sustainability challenge, design as a discipline has been renovating moving away from product design into the design and redesign of services including public services where the service is not perceived as an end in itself but as means to societal transformation. This move so far has been focused in the area of public health services. In this presentation, education in schools, has been discussed as a service through which societal transformation towards sustainable development can take shape. However, current literature on schools and education shows that there is a great

gap between the vision for the new role of education and its practice. When considering schools through the conceptual lens of organisational development, a new context for design emerges.

REFERENCING

Bate, P., R. Khan, et al. (2000). "Towards a Culturally Sensitive Approach to Organization Structuring: Where Organization Design Meets Organization Development." *Organization Science* 11(2): 197-211.

Bhamra, T. and V. Lofthouse (2007). *Design for Sustainability: A Practical Approach*. Hampshire, Gower Publishing, Ltd.

Bourn, Douglas (2005). *Education for Sustainable Development and Global Citizenship - The UK Perspective*. Applied Environmental Education & Communication 4(3), (233-237).

Buchanan, R. and Margolin, V. (Eds.), 1995. *Discovering Design Explorations in Design Studies* London: The University of Chicago Press.

Chick, A. and P. Micklethwaite (2011). *Design for Sustainable Change: How Design and Designers Can Drive the Sustainability Agenda* Singapore, AVA Publishing.

Davidoff S & Lazarus (1 997) . *The learning school. An organisation development approach*. Kenwyn: Juta.

Freire, K. and D. Sangiorgi (2010). Service design and healthcare innovation: From consumption to coproduction and co-creation. . *2nd Nordic Conference on Service Design and Service Innovation*. Linkoping, Sweden

Fuad-Luke, A. (2009*). Design Activism: beautiful strangeness for a sustainable world* London, Earthscan.

Hatch, M. J. (1993) "The dynamics of organizational culture", *Academy of Management Review*, 18: 657--693.

Henderson, K. and D. Tilbury (2004). *Whole-school approaches to sustainability: An international*

review of whole-school sustainability programs. Macquarie University

Lovelock, James (2006). *The Revenge of Gaia*. Reprinted Penguin, 2007

Reed Johnson, J.A. (2009) *Education for Sustainable Development: A comparison between two eco-schools, one in England and the other in South Africa.* Ph.D. Thesis. Manchester Metropolitan University: U.K.

Ranson, S., B. Hinings, et al. (1980). "The Structuring of Organizational Structures." *Administrative Science Quarterly* 25(1): 1-17.

Sangiorgi, D. (2011). "Transformative Services and Transformation Design " *International Journal of Design* **5**(1): 29-40.

Schein, E. H. (19901, "Organizational Culture." *American Psychologist,* 45, 2, 109-119.

Smircich, L. and G. Morgan (1982). "Leadership: The Management of Meaning " *Applied Behavioural Science* 18(3): 257-273.

Thorpe, A. (2007). *The Designer's Atlas of Sustainability.* London, IslandPress.

Van Poeck, K, Vandenabeele, J., Bruyninckx, H. (2009) 'Sustainable citizenship and education' In: *CRLL Conference, 'Lifelong Learning Revisited: What Next?'*: Conference Proceedings. Stirling, Scotland, June 23-26, 2009.

Vare P. and Scott W. (2007) Learning for a Change: Exploring the Relationship Between Education and Sustainable Development *Journal of Education for Sustainable Development* 2007 1: 191

UNESCO (2009) *Bonn Declaration*. UNESCO World Conference on Education for Sustainable Development. Bonn, Germany.