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Matching values and value in construction and design

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In response to a series of influential government reports that have been critical of the approaches taken by, and outputs of, the UK construction industry, human aspects of construction have been given a new significance, particularly issues of value as judged by diverse stakeholders. This paper seeks to relate diverse and applied notions of value in construction with a similarly diverse body of knowledge contained within social and environmental psychology on values, from the work of Maslow and others in the 1950s and 1960s, to more recent contributions by Schwartz and colleagues. Collectively, the paper describes the work of an inter-disciplinary team with the active participation of key stakeholders in construction: professional organisations, practitioners, construction companies, clients and end product users, focused upon the search for a new 'language of value' that can aid the adoption of innovative conceptualisations of value within the industry. Finally, an innovative framework of value is presented that has been developed for design practitioners in the non-domestic building industry.

Background

There is an emerging consensus within the UK construction industry that traditional industry practices are no longer appropriate in the 21st century and require change. A range of influential reports, funded and supported by Government - notably industry reviews by Latham (1994) and Egan (1998) has stimulated this consensus. These reports have been highly critical of the approaches taken, and outputs delivered, by construction companies. As described by the minister for construction "The fundamental barrier to change and improvement is the [construction] industry's adversarial culture and its overemphasis on lowest cost." (Brian Wilson, 2002, p. 17). By elevating the goal of 'least cost' to a value status that is more important than any other guiding business principle, the industry has tended to adopt a singular rationale for procurement, selection of contractor (typically by price-competitive tendering) and selection of materials. In this adversarial culture of subcontracting, collective responsibility for the provision of highest quality design outputs has been avoided by a culture of blame (Egan, 1998).

Government and industry initiatives are attempting to broaden the definition of value used by the industry beyond least cost. Sir John Egan argued that value in construction should go beyond 'least cost' to encompass a combination of customer satisfaction, productivity, safety and value for money. In other words, value is an outcome (and metric) that relates to all areas of construction (e.g. design, health and safety or productivity). In doing so, Egan did not attempt to replace the value accorded to 'least cost' by the industry, but to complement it with other forms of value currently apportioned less status. The aim therefore, is for the UK construction industry "to realise maximum value for all clients, end users and stakeholders and exceed their

expectations through the consistent delivery of world class products and services." (Egan, 2002, p.10) In this, the government is attempting to make the culture of UK construction become more service-oriented, as demonstrated by a number of other UK manufacturing and engineering sectors, in which the provision of customer service has become a central value that drives business activities (Davies et al., 2001).

Design has been identified as an aspect of construction that has been compromised by the 'least cost' approach (Egan, 1998, 2002). The Prime Minister has commented "Yet we know that good design provides a host of benefits. The best designed schools encourage children to learn. The best designed hospitals help patients recover their spirits and their health. Well-designed parks and town centres help to bring communities together." (Department for Culture, Media and Sport, 2000).

Underlying these arguments about the weaknesses of traditional notions of value in design are a series of assumptions:

- that different notions of value can be identified, defined, measured and adopted
- that these notions of value are critical in shaping both the approaches and practices taken by the industry as well as the outputs it delivers
- that an increased emphasis placed upon design will aid the delivery of enhanced value to the customer and other stakeholders.

The aim of the paper is to analyse how the concept of value has been conceptualised and applied within construction, from traditional definitions to emerging conceptions, with a particular focus upon the value accorded to design. Secondly, it seeks to relate these diverse and applied notions of value in construction with the similarly diverse body of knowledge contained within social and environmental psychology on values, from the work of Maslow and others in the 1950s and 1960s, to more recent contributions by Schwartz and colleagues.

Values

Measuring and defining value has been problematic. "My belief is that the concept 'value' will soon be obsolete. It includes too much, means too many diverse things and has too long a history" (Maslow, 1962, p.168). Forty-one years later we are still grappling with the concept of value and what is more, we are still making implicit and explicit reference, particularly in applied fields such as construction and management, to the work that Maslow published on the motivational role of values.

More recent studies of values by Schwartz (1992, 1994) have explicitly acknowledged the contribution that Maslow and later, Rokeach (1973) made to the identification and role of human values. Since Rokeach (1973), human values have been defined as desirable goals, varying in importance that serve as guiding principles in people's lives (Schwartz, 1992). "Research on values in the social sciences is primarily concerned with relating the value priorities of individuals or groups to their antecedents in socially structured experience and cultural background on the one hand, and to general attitudes and patterns of behavior on the other." (Schwartz, 1992, p. 51) Just as Schwartz recognised the cultural antecedents of human values and their observable consequences in the form of human behaviour, this study of value in construction traces its origin in industry norms and specific practices including design, and its consequences in the built forms that are its outputs.

Both the actions and aspirations of design professionals within the construction industry are shaped by the content and structure of people's values, which are in turn shaped by industry norms. In fact, we can observe a nested structure of values, from societal values at the widest level, through construction industry values and more specifically to the values held by specific businesses, projects, stakeholders and individuals. The study of how these values operate, interact and, perhaps conflict at these different levels has yet to be properly addressed.

Values have a motivational basis. According to Devos, Spini and Schwartz (2002), values are not idiosyncratic, but coalesce in measurable and predictable systems that are "an integrated structure of motivational goals" (p.493). Value systems that people possess have a collective element because they are informed by ideas that circulate within the particular social milieu within which people live (Pan and Scarborough, 1999 in Hislop, 2002). Values are motivational in that they influence goal-setting and intentional behaviour. According to Schwartz (1992), "values are the criteria that people use to select and justify actions and to evaluate people (including the self) and events" (p.1). Schwartz (1992) has proposed a complex definition of values as:

- concepts or beliefs
- that pertain to desirable end states or behaviours
- that transcend specific situations
- that guide selection or evaluation of behaviour and events, and
- are ordered by relative importance.

Since values pertain to desirable end states or behaviours, values are thought to influence decision-making, for example through the setting of project objectives, tasks and actions. However, generally, the literature supposes that even specific values will rarely pertain to specific behaviours, but instead operate more as higher order guiding principles that transcend specific behaviours or situations and are mediated by more specific beliefs. This model of values forms the basis of Stern, Dietz, Abel, Guagnano and Kalof's (1999) environmental behaviour framework, that is detailed below. Applying these conceptions of values in construction can enable a better understanding of the psychological processes antecedent to both tasks (what people have to do) and processes (how people and groups/teams work together, maintain relationships and achieve agreed outcomes). Because task and process are inter-linked, and materially affect the quality of built output, it is important to measure, monitor and evaluate the progress of both. Consequently, values act as guiding principles that shape objectives, tasks and processes (behaviours) both at the individual and the more social levels of construction activity such as project teams or businesses.

Focusing upon the structure of human values, Schwartz (1992, 1994) devised a 56 item survey that has been applied in 97 research studies in 44 countries. Results have indicated ten distinct 'types' of values:

- Self-direction – need for control and mastery
- Stimulation – the need for variety and thrill-seeking
- Hedonism (that no longer incorporates happiness) – that is related more to pleasure or sensuous gratification

- Achievement – personal success through competence according to social standards
- Power – the need for dominance, control and status
- Security – safety, harmony, stability
- Conformity – matching social expectations and norms
- Tradition – respect, commitment and acceptance of customs and ideas
- Benevolence – the need for affiliation
- Universalism – linked to Maslow's concept of the self-actualized person that incorporates understanding, appreciation, tolerance and welfare for people and the planet.

Figure 1 below (from Devos et al., 2002) illustrates the structural relationship between the ten values. They are arranged such that their proximity to each other is an indication of similarity. Consequently, values that are different to each other are placed opposite one another in the diagram. The ten value dimensions of the Schwartz Value Survey can be described in two dimensions by two higher-order bipolar value dimensions: self-transcendence versus self-enhancement and openness versus conservation. Self-transcendence incorporates acceptance of and concern for others whilst self-enhancement values personal success and the domination of others. The second dimension contrasts openness (in which independent thought and change are valued) with conservation that is characterised by self-inhibition and tradition.

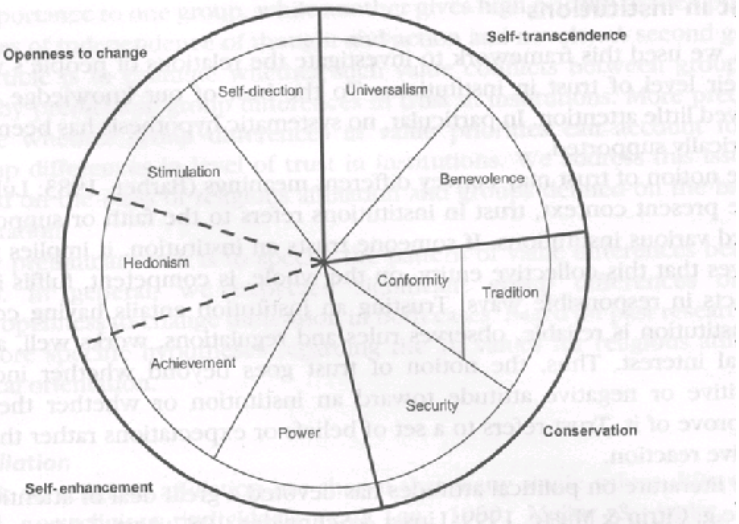


Figure 1. Structural relations among the 10 values and the four higher order values.

The human values survey has been employed at principally at the individual level. Socio-demographic characteristics and individual experience influence value priorities (their salience and order). Value priorities, in turn, influence behaviour – what people attend to/orient towards and what choices they make. There is an explicit content dimension to these human values: the content is regarded as being comprehensive and exhaustive. This means that the ten human values are always present in a sample population and that they can be used to describe all the values that are expressed by a particular population. Accordingly, the single, universal value structure is well-defined, reliable and cross-culturally stable.

However, minor amendments to the human values survey may be necessary for application in applied contexts such as the construction industry. Firstly, changes in value labels may be required (e.g. Stern et al., 1999 use the term 'traditional' to describe the conservation dimension). We also consider that the term traditional is more appropriate for use within the construction industry and its use avoids confusion of the term conservation with the specific 'preservation of species' meaning used within environmentalism. However, we acknowledge the potential for confusion with common industry terms such as "traditional procurement" and "traditional construction," that are widely used. Secondly, there is a need for more focused analysis of how values operate and interact at different levels of analysis. This is developed below.

Values in Construction

Linking the psychological literature and the study of values in construction, the prevalence of the two higher order dimensions of tradition versus openness-to-change and self-enhancement versus self-transcendent values can be examined at different levels within the UK construction industry. The levels of the nested structure of values that we are most interested in are: at the highest level, the construction industry as a whole; corporate or business values and professional values, set within this; specific project values and finally, values held by individuals. We propose that the mechanisms by which values are formulated and expressed at these levels will influence the quality of design output. Therefore, we are interested in identifying the prevalence of specific values at these different levels and then analysing the nature and dynamics of their interaction, as they become manifest in specific construction projects.

Within UK construction, industry analyses suggest that traditional values are more prevalent than openness-to-change values (e.g. Spencer and Winch, Construction Industry Council (CIC) 2002) and that self-enhancement values prevail over self-transcendent values. Analysing Government reviews, it seems that the culture of construction is one with an overemphasis upon tradition, conformity and security and not enough emphasis upon the value of 'openness to change', novelty, stimulation or expression (DETR, 1998, Strategic Forum for Construction, 2002). The industry is often characterised as being risk-adverse, with a strong tendency to perpetuate traditional methods and professional roles. There is also an overemphasis upon self-enhancement, as evidenced by dominance and adversarial relations, in contrast with self-transcendent values, as evidenced by an emphases upon teamwork, sharing and trust (Latham, 1994). In this light, there is an urgent need to redefine construction industry achievement and success in terms of a better balance between innovation and tradition. And this achievement can be expressed as delivering better value to clients, as well as other stakeholders (such as the contractor, architect or surveyor). In this light, our project is part of the wider government agenda of delivering better value

through design that is encapsulated in the recent establishment of the Commission for Architecture and the Built Environment (CABE) who act as ambassadors for design quality.

CABE and RIBA emphasise the importance of self-transcendent values such as valuing architecture rather than individual architects, partnership, investment in people and socio-demographic diversity (Loe, 2000 (RIBA) and Worpole, 2000 (RIBA). CABE's (2001) corporate strategy for 2002-2005 clearly advocates support for an empirical approach to identifying and qualifying self-transcendent values (for further information visit www.cabe.org.uk). Their support for a (scientific) empirical approach is in contrast to the concerns expressed in the 1970's by architects who felt that their creative and transcendent values were threatened by an approach to architecture and design informed by empirical psychology (Canter, 1974). It has taken twenty seven years for environmental psychological research conducted by Canter (1975) to be accepted by the construction industry albeit by governmentally-endorsed 'early adopters' such as the Construction Industry Council (2002) rather than, perhaps, by many practitioners. This disparity in the speed with which representatives of different levels of the values hierarchy change their values is important since it may contribute to a sense of conflict and the methods chosen to address conflict.

Two empirical approaches to measuring value that are currently under development within the construction industry are value drivers (be: see www.beonline.co.uk for more information) and the Design Quality Indicators (CIC: see www.dqi.org.uk for more information). Both of these approaches are attempting to measure specific qualities of construction outputs that have been conventionally overlooked and treated as of lower value than 'least cost'. By providing reliable and valid measures of these alternative values, the proponents of both approaches wish to increase the salience, legitimacy and acceptability of alternative values within the industry and, in so doing, to change practices. What we are trying to do is to account for the process by which the salience, legitimacy and acceptability of alternative values might occur.

The Design Quality Indicator (DQI) is a means of assessing the quality of construction projects (Blacker, 2002). Its purpose is to structure and summarise stakeholders' assessments of the quality of design. Repeated assessments compiled using the same structure can be compared over time to provide an objective comparison of one project with another. The DQI structures assessment of product qualities according to the three tenets of Western architectural design established by Vitruvius: commodity, firmness and delight, and translates these into three indicators: functionality, build quality and impact for use in a modern context (Thomson, Austin, Devine-Wright and Mills, 2003).

Relevant stakeholders complete the DQI questionnaire in a facilitated workshop. Stakeholders express their response to a series of statements describing design qualities such as: 'The building is sited well in relation to its context'. The responses of all stakeholders are summarised in a radar chart. The DQI is currently being piloted in 100 organisations and approaches to its application are being established. The industry has already begun to use the metric to illustrate design quality of products to other parties (Spring, 2002, CABE).

However, we would argue that a summation of individual's completed DQI questionnaires will only give an index of just that, a collection of individual responses. The DQI does not provide any information about the reasons why a person responds in a certain manner. This information would be useful for developing project objectives.

We envision that this information will reflect the way in which project objectives are situated within a framework of values generated by the individual stakeholder as a function of their professional role, their organisation's business values and the culture of the construction industry.

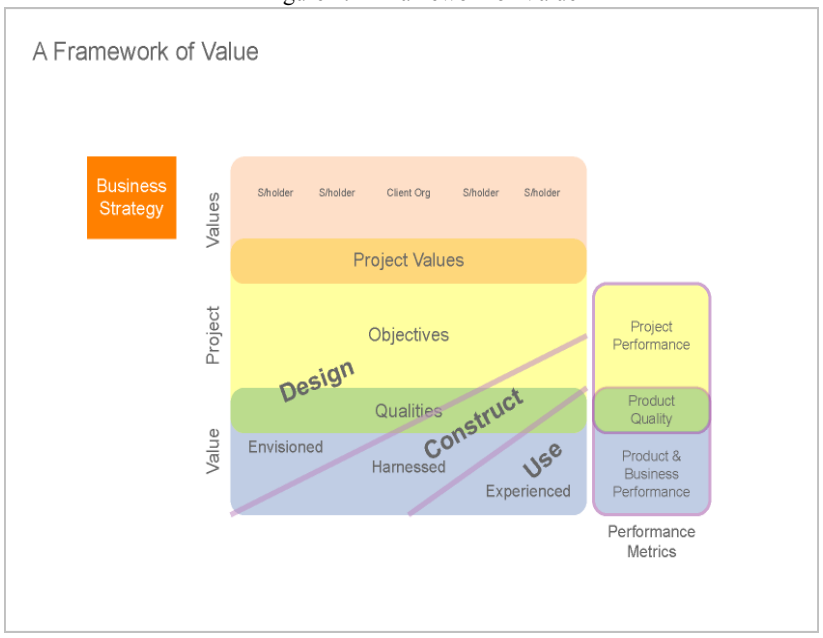
The DQI aims to raise the average quality of buildings in the built environment and to increase levels of understanding and appreciation of the value of good building design. However, the DQI identifies value 'signifiers' but does not facilitate development of, or expression of how these signifiers might be communicated or encapsulated within a specific project. As such the utility of the DQI is as an awareness raising tool that stimulates discussion of how design impacts on qualities of the built product.

A Framework of Value in Design

Our project is about enabling articulation of value indicators and this requires the systematic identification of the way in which stakeholders and clients talk about their aspirations and value. As values inform beliefs that inform action (Stern et al., 1999), we have incorporated a measure of values into our framework that seeks to show how value can be enhanced through design. We are cognisant of the fact that levels of salience of values can be low since they are not necessarily easily accessible or conscious in individuals. What we are aiming to do is to show how the 'deeper' levels of cognition such as values, in addition to more accessible levels such as beliefs about design, impact on our understanding of value delivery within design.

In order to explore the relationship between values and a definition of value that is more than just least cost we have developed a Framework of Value (see Thomson et al., 2003) that is illustrated in figure 2.

Figure 2: A Framework of Value



The framework of value attempts to describe the structural nature of the relationship between values and value. At the top of the framework are six potential levels of values: societal, industrial, organisational, professional, project and the individual level. However, we are particularly concerned with the content and relationship between four of these levels: the industrial, organisational, professional and project. Industrial values that are absent from figure 2 provide the wider context of this research project (e.g., Latham, 1994). We concentrate upon the organisational level (described as the business strategy), professional values (described as stakeholder and client values) and project values. The latter is informed by, and negotiated within, the latter. Project values are likely to be the most dynamic especially as most design projects within the construction industry are 'one-offs'. Of primary importance is the identification and analysis of the degree to which industry, organisational and professional values actually translate into project values and the degree to which these, in turn, actually translate into project outputs.

There are three overlapping layers in the framework: nested values (top), the project (middle) and value (bottom). The structure of values at different levels forms the content of the first tier. These values make up the guiding principles or widespread beliefs that shape beliefs and behaviour. Where values overlap with the project, project values and objectives arise. In turn, the qualities (of the product and process) deliver the value that is progressively envisioned, harnessed and experienced. An organisation's business strategy justifies the creation of the project in the first place, as well as defining what the project must deliver to be successful. However, the strategies of all the businesses involved in a project will play some role in setting overall project direction.

Within the three layers of values, project and value we can identify three interfaces in the problem-setting process:

- Project Values – the negotiated and shared guiding principles to which all stakeholders subscribe.
- Objectives – specific goals that reflect the project values and business strategies.
- Qualities – the product features required to satisfy the objectives.

The framework also shows how we can think about value being delivered using the terminology of Allinson (1997). Firstly, value is envisioned in the design proposals. Secondly, it is harnessed in the emerging project as it is constructed. Thirdly, the product (i.e. a building) is experienced by users when it is handed over and used. Our empirical research work will be guided by the aim of identifying how values, nested at different levels, are manifest, operate and interact, as specific industry projects are envisioned, harnessed and experienced.

The framework aims to address two issues: firstly, the need to assess the performance of the product (such as the finish and services e.g., its operation and durability) and the business performed within it. Secondly, the need to assess the performance of the project in reflecting the project values during design and construction and of predicting the product's performance. These two forms of assessment overlap in a region we can

identify as product quality and are concerned with determining the extent to which product qualities reflect stakeholders' values.

The framework of value describes a way of conceptualising and translating values (at different levels) to value within a construction project. It is set within a context in which design is valued since 'good' design can have a profound effect upon the value of a construction product. "Design represents a minute proportion of the lifetime cost of a building - less than 1 per cent - but done well it has a disproportionate impact on how well the building, and its surroundings, perform." (Lipton, 2001)

Our framework has been developed for use by design practitioners in the non-domestic building industry. The utility of the framework will be explored empirically with design practitioners, professional organisations and construction companies all of whom differ to some extent in the way in which they talk about value and values. A socio-environmental psychological perspective seeks to account for the effect of contextual factors at different levels of analysis (from the individual to the societal, from the unconscious to the conscious) all of which are encompassed within an attempt to map the relationship of values and value within design.

Acknowledgement: The authors acknowledge the contribution to this work provided by collaborators of the Managing Value Delivery in Design project: the EPSRC, DTI, Sheppard Robson, AMEC, BAA, Be, Broadgate Estates, CIBSE, CABE, Davis Langdon & Everest, RICS and RIBA and also Dr. Patrick Devine-Wright for his comments on an earlier version of this paper.

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