

EXPLORING ALIGNMENT OF PERSONAL VALUES IN A COMPLEX, MULTI-ORGANISATION CONSTRUCTION PROJECT ENVIRONMENT

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The inherent complexity in construction projects is often attributed to their nature as a Temporary Multi Organisation (TMO), and as part of this, the heterogeneity of stakeholders in a TMO team is bound to influence project outcomes, including the increasingly important dimension of sustainability performance. According to values theory (pioneered by Schwartz and others), personal values are a determinant and predictor of attitudes and behaviours. Scholars who have applied this have begun to characterise the link between personal values and pro-environmental behaviours, but the mechanism through which personal values guide behaviour at the organisational/TMO level is not well understood. Here, a case study TMO (a major rail infrastructure project in the UK with a higher than expected sustainability performance) was used as an empirical setting, to explore this problem. The Schwartz Values Survey was used to derive insights on the role of individuals' values, group values, and their relationship to project performance in a TMO setting (n=176). A number of initial findings were derived, including an important point of tension around Schwartz's Self-Direction values category, which warrants further investigation in the context of pro-environmental behaviours on site.

Keywords: sustainability, Temporary Multi Organisation (TMO), personal values

INTRODUCTION

Values have been related to key organisational phenomena such as sustainability, organisational commitment and values congruency, impacting personal and organisational performances (e.g. Posner 2010; Glazer, *et al.*, 2004). They are a bonding mechanism between individuals, helping organisations achieve their aim and objectives. Values can be defined as “conceptions of the desirable that guide the way social actors select actions, evaluate people and events, and explain their actions and evaluations” (Schwartz 1999: 24). Understanding the values of individual actors within an organisation may therefore help predict and determine their likely attitudes and behaviours, to overcome key organisational challenges. Empirical studies have demonstrated the impact of values alignment at personal and organisational levels and

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their relationship with positive work attitudes and organisational outcomes. However, little research has been undertaken to understand how construction projects deliver sustainability.

This research, therefore, develops new insights on the alignment of personal values in a major infrastructure project by drawing on Schwartz's (1992) Values Survey (SVS) and his theory of human values. Responses from 176 members of the project team are analysed using descriptive statistics and factor analysis. The findings provide evidence of a duality within the Schwartz values model that affects the way in which pro-environmental behaviours may ultimately play out in the construction project context. This study provides insights on the underlying role of values and their relationship with sustainability performance in TMO project environments, and forms the first phase of a major collaborative research project.

VALUES THEORY IN THE ORGANISATIONAL CONTEXT

The Construction Project Environment and Sustainability Performance

Construction projects are arguably amongst the most complex and challenging of all endeavours. The one-off, temporary, and short-term nature of such projects is a typical representation of the construction industry. One feature, which is a particular cause of inherent complexity, is the Temporary Multi Organisation (TMO) (Pathirage, *et al.*, 2007; Fellows and Liu 2008). The team of heterogeneous organisations and stakeholders in TMOs represent a diverse set of concerns and interests. Coupled with dynamic organisational structures, and complicated processes, these projects face a range of challenges and complexities which may hinder project performance, particularly around sustainability (Fellows and Liu 2008). Indeed, despite increasing practitioner and scholarly focus, operationalising sustainability remains a challenge (Myers 2005), and the reasons which underpin why one project outperforms another are not well-articulated. This is of concern, particularly in the context of TMOs, due to the large number of individual actors and organisations involved in executing often large infrastructure projects (such as road and rail). Some scholars take the position that sustainability resembles a set of values (e.g. Pfeffer 2010), and as Ratner (2004) emphasised, it is a 'dialogue of values', embedded in governance and communication processes between stakeholders. However, despite support for such arguments in empirical studies, the role of an individual as a change agent for enacting sustainability has not been well-defined and explored (e.g. Visser and Crane 2010; Ng and Burke 2010). Yet these arguments may explain why some projects perform better than others, arguably because sustainability is underpinned and driven by values (e.g. Florea, *et al.*, 2013; Ratner 2004), but the case has not yet been made convincingly within construction research. The following sections attempt to unpack values theory, as it applies to both individuals and organisations, in light of this industrial context.

Values - Personal and Organisational Perspectives

Values are considered as fundamental determinants of perceptions, attitudes and behaviours (e.g. Rokeach 1973; Schwartz 1992). They are shared socially and operate at different levels (e.g. personal and organisational) (Mills, *et al.*, 2009; Posner 2010). Personal values are relatively stable standards that influence and guide the formation of behaviour (e.g. Fritzsche and Oz 2007; Rokeach 1973; Zhang, *et al.*, 2008). Attitudes and behaviours are, thus, the manifestation of the values that individuals uphold, which influence key personal and organisational endeavours, such as decision-making (e.g.

Liedtka 1989). Values are a key element of organisational culture, and leadership, impacting both individual and organisational performance (Posner 2010).

The success and sustained performance of organisations is therefore arguably linked to the shared values of their employees (e.g. Zhang, *et al.*, 2008). Values, for example, have been linked to organisational phenomena, such as job satisfaction, change, performance and commitment (e.g. Glazer, *et al.*, 2004). Meglino and Ravlin (1998) argued that values can also have implications on interpersonal interactions. That is, individuals with similar value systems are likely to perceive/react to external stimuli similarly, which may in turn improve interpersonal communications and decision-making processes.

Furthermore, individuals with shared values are likely to behave similarly, enabling them to predict better one another's behaviour (Meglino and Ravlin 1998). Achieving alignment or congruity between individuals may be a contributor to project success, particularly when addressing sustainability (Karp, 1996). Furthermore, Mills *et al.*, (2009) showed that a universal values structure could be used to measure organizational similarities; importantly, their research was undertaken in a construction context.

Values - Theory and Application

Much research on values adopts a descriptive approach to explain and explore the importance individuals' associate with values (e.g. Rokeach 1973), with less focus on the underlying structure of value systems. For example, Rohan (2000: 260) argued that "... Rokeach's Value Survey is essentially a list of unconnected value words" and: "without a theory about underlying value system structure, it is impossible to understand the consequences of high priorities on one value type for priorities on other value types". However, a notable attempt which has been one of the focal points of contemporary research around values is Schwartz's (1992) 'theory of basic human values' and his values survey instrument. Schwartz proposed that the value system can be structured around two motivational dimensions, that are "cast in terms of conflicts", and: "can be understood in terms of two fundamental human problems that need to be solved" (Rohan 2000: 260). These dimensions are: 'Openness to Change' (OC) vs. 'Conservation' (CN), and 'Self-Enhancement' (SE) vs. 'Self-Transcendence' (ST). Furthermore, the model can be divided into 'personal focus' vs. 'social focus' (Sortheix and Schwartz 2017), where social-focused values regulate how one relates socially to others and maintains cooperative relations. Schwartz (1992) outlined ten broad values types in accordance to the motivation that underlines each one, arranged in a two-dimensional circumplex structure (see Figure 1).

The Schwartz Values Survey (SVS) instrument is composed of 56 values items which are representative of the ten values types. Schwartz's (1992) theory was validated through extensive application, making it one of the most robust and structured approaches to collect, measure and analyse individuals' values. Mills *et al.*, (2009: 7) considered it: "the most advanced values theory to date" with the most comprehensive list of values. De Clercq, *et al.*, (2008) found Schwartz's model as an appropriate and comprehensive framework to study person-organisation fit. Numerous empirical studies have confirmed that SVS can be used to predict behaviours and attitudes. For example, in predicting pro-environmental (sustainability in broader sense) behaviours, ST values were consistently associated with sustainability, whilst SE values opposed pro-environmental behaviour (e.g. Karp 1996; Thøgersen and Ölander 2002). Findings from a number of notable studies (e.g. Stern, *et al.* 1993, 1995) suggest that only values belonging to these segments were related to pro-environmental behaviour, whereas Thøgersen and Ölander

(2002: 626) found that “only one motivational value type (universalism) has a significant influence on environment-friendly behaviour.”

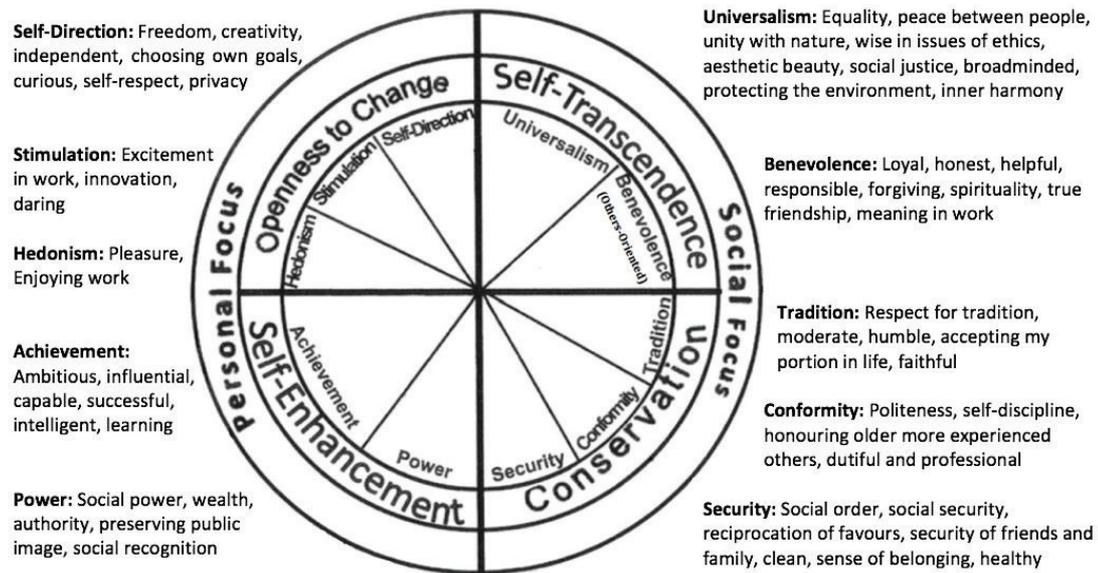


Figure 1: Theoretical model of values (adapted from Sortheix and Schwartz 2017)

In summary, values priorities are likely to provide insights on teams, organisations, and individuals, as well as predict attitudes and behavioural propensities in relation to various organisational concerns. There is clearly merit in exploring the underlying role of personal values, as a means to enhance the sustainability performance of construction projects, and this is the subject of our research. Here, we address the question: to what extent might values priorities and alignments act as determinants and predictors of project performance, specifically in respect of sustainability? The remainder of this paper reports on the use of values theory in an empirical study of a case TMO project in the construction industry. The results are presented, along with a statistical analysis. The outcomes will be used in subsequent research to develop a lens through which we can robustly explore pro-environmental behaviours, which are posited as a contributor to project sustainability performance.

RESEARCH METHOD

To understand the underlying role of personal values and their likely relationship with project performance, particularly around sustainability in the construction sector, a large infrastructure rail project in the UK was studied. It was a joint-venture (JV) involving three major multi-national contractors, as well as a Client organisation. Given the contemporary and exploratory nature of the phenomenon, a live ‘case study’ was considered the most appropriate research strategy (Yin 1994) to the study of professionals’ values and their influence on project sustainability performance. The project was a very suitable case study because it was a large, self-sufficient, highly-diverse, multi-organisation project (TMO). This case is the subject of a longitudinal study using multiple data collection methods. In this paper, we focus on the results of a questionnaire survey on values, which included a modified version of the SVS (Mills, *et al.*, 2009) that draws on Schwartz’s (1992) theory. As part of the sampling process, only individuals with professional and managerial roles were considered relevant for this study, as their day to day activities (e.g. decision-making, attitudes and behaviours) were, a) likely to be influenced by their personal values and b) influence project performance

directly or indirectly. Hence, all individuals classified as labourers and site operatives were excluded from this study. During the course of the study, the total population on site varied from 270-300; the number varied as staff came and went as work packages were completed. This clearly makes identifying a final figure for the total population difficult and arguably inappropriate for this study. Overall, 231 individuals were considered relevant, and invited to participate (49 from Client, 182 from the JV). The surveys were issued in both hard copy and email format to be completed manually. The SVS questions provided a robust means to measure individuals' personal values priorities. In completing SVS, each participant comparatively rated the importance of 56 values (divided into two lists) 'as a guiding principle in my working life' on a nine-point scale. The anchors of -1 ('opposed to my values') and 7 ('of supreme importance') were used. The other sections of the survey consisted of questions to assess participants' level of awareness around values and sustainability in their work environment (not reported in this paper), and demographic data. Surveys were coded to ensure only the invited individuals participated and that the responses received were representative. The next section presents preliminary analysis of the SVS results.

OVERVIEW OF RESULTS AND STATISTICAL ANALYSIS

A total of 176 responses to the survey were received, giving a response rate of 76%, which was considered representative of the overall project population, the management levels and the functional groups. Response rates from the two main sub-groups, (Client and JV) were 86% (n=42) and 74% (n=134), respectively. Individuals' values data were analysed and then also aggregated to understand the whole population. The most important values (average score ≥ 5) to the entire population (in descending order) were: 'security of friends and family' (5.76), 'healthy' (5.67), 'honest' (5.62), 'capable' (5.47), 'self-respect' (5.44), 'meaning in work' (5.43), 'learning' (5.4), 'enjoying work' (5.38), 'equality' (5.37), 'responsible' (5.29), 'dutiful and professional' (5.25), 'successful' (5.23), 'politeness' (5.22), 'intelligent' (5.16), 'loyal' (5.15), 'ambitious' (5.13) and 'helpful' (5.03). The least important values with average scores of less than 3 were 'social power' (1.43), 'spirituality' (2.22) and 'accepting my portion in life' (2.85).

A key observation from the analysis suggested that there is little disparity in values between the two sub-groups, with only 'accepting my portion in life', and 'honouring older more experienced others', for example, being notable exceptions. However, it is most helpful to consider these results at the level of Schwartz's ten higher order values categories. Table 1 presents the average values scores and Standard Deviations (SD) according to Schwartz's (1992) higher-order values dimensions and the ten values categories for the overall project team and the sub-groups.

Some of the priorities of the Client and JV teams were similar. At both project and team levels, the most important segment was ST (followed by OC), whereas SE was the least important. This appears consistent with Schwartz and Bardi's (2001) general findings. Looking at the project via a broader perspective (i.e. social vs. personal focus), the overall project team and the JV team sub-group erred slightly towards a social focus, whereas the Client team leaned towards a personal focus. The close proximity of the average scores warrants further analysis to develop a clearer understanding of priorities within the project group and the sub-groups. Examining the Standard Deviation values suggest that individuals within the project hold a high degree of aligned values (below an arbitrary 1.0 threshold), in six values. However, there was a lack of alignment among Tradition, Power and Hedonism values. The Client team had eight aligned values, whereas the JV team had six. This suggests that both teams displayed some internal consistency, with the

exception of Stimulating and Power values, but the observed differences in values priorities and their alignment could perhaps be an indicator of different cultural paradigms or management strategies. Indeed, observing the alignment and disparity of values between project actors may provide valuable insights to help build TMO projects consisting of individuals from diverse backgrounds (Mills, *et al.*, 2009).

Given the close proximity of the average scores and lack of significant difference between the higher-order dimensions and categories, further analysis was undertaken. Due to the large number of values items, reducing these to fewer groups of variables was appropriate to help facilitate interpretations (Young and Pearce 2013). To identify the underlying structure of the 56 values, exploratory factor analysis was carried out. The basic ‘respondents to variables’ ratio was about 3:1, lower than the recommended ratio of 5:1 to carry out factor analysis, and much lower than the 10:1 that some scholars suggest (e.g. Young and Pearce 2013).

Table 1: Average value scores and Standard Deviations for values dimensions and categories

Value Category / Dimension	Project (n= 176)		Client (n= 42)		JV (n= 134)	
	Average	SD	Average	SD	Average	SD
SOCIAL FOCUS	4.42	.82	4.15	.66	4.5	.85
Self-Transcendence (ST)	4.52	.81	4.33	.71	4.58	.84
Universalism	4.36	.96	4.21	.89	4.40	.98
Benevolence	<u>4.69*</u>	.80	<u>4.46*</u>	.66	<u>4.76*</u>	.83
Conservation (CN)	4.33	.92	3.94	.76	4.45	.94
Tradition	3.61**	1.34	3.05**	1.17	3.79**	1.35
Conformity	<u>4.83*</u>	.99	<u>4.47*</u>	.96	<u>4.94*</u>	.97
Security	4.54	.81	4.31	.78	4.61	.81
PERSONAL FOCUS	4.40	.76	4.16	.55	4.47	.80
Self-Enhancement (SE)	4.20	.9	3.95	.75	4.28	.93
Power	3.30**	1.20	3.01**	.94	3.39**	1.26
Achievement	<u>5.11*</u>	.86	<u>4.89*</u>	.74	<u>5.17*</u>	.88
Openness to Change (OC)	4.47	0.81	4.29	.64	4.53	.85
Hedonism	4.44	1.12	<u>4.39*</u>	1.12	4.45	1.13
Stimulating	4.43	1.03	4.18	.91	4.50	1.06
Self-Direction	<u>4.55*</u>	.89	4.29	.71	<u>4.63*</u>	.92

* *Most important value categories*

***Least important value categories*

To address this, the 56 values were collapsed to Schwartz’s (1992) ten values types, by averaging the mean scores of corresponding values, which resulted in a ratio of c. 18:1. The Kaiser-Meyer-Olkin value, a measure of sampling adequacy, was 0.885, which exceeded the recommended value of 0.6. Bartlett’s test of sphericity reached a statistical significance of $p < 0.001$, thereby confirming the factorability of the correlation matrix. Two components emerged with eigenvalues > 1.0 , explaining 68% of the common variance. To interpret these, an oblique rotation (Promax) was carried out; the correlation between the two components exceeded the 0.32 limit required for interdependency (Hair, *et al.*, 1998). Oblique (Promax) rotation was therefore used for the analysis, and the factors retained exhibited a loading of > 0.5 on their respective components (see Table 2).

The rotation was converged in three iterations. Cross-loading between two components for one variable was observed, which exceeded 0.32 (Young and Pearce 2013). The variable, identified as Self-Direction, was retained because it is likely to provide an explanation about the underlying nature of the project team, and the loading factor difference between the two components was high, at 0.586 for Component One, compared to 0.35 for Component Two. Component One consisted of six items; two were

representative of ST, whilst three were representative of CN. The last item was representative of OC. Interestingly, five of the items here were representative of the social focus dimension. This component was tentatively named “Right Component”, in relation to its position on Schwartz’s model. Component Two consisted of four items. Two items were representative of SE, whilst two were representative of OC. This component is to some extent representative of the personal focus dimension, because Self-Direction value resides under Component One. This component was tentatively named “Left Component”.

Table 2: Factor analysis extracting two components and the corresponding dimensions

Pattern Matrix	Component		Dimension	Focus
	1	2		
4- Conformity	.965		CN	Social
3- Tradition	.937		CN	
1- Universalism	.807		ST	
5- Security	.800		CN	
2- Benevolence	.788		ST	
10- Self-Direction	.586	(.350)	OC	Personal
8- Hedonism		.921	OC	
9- Stimulation		.791	OC	
6- Power		.673	SE	
7- Achievement		.577	SE	

While the factor analysis outcomes have a clear relationship to Schwartz’s circumplex model, Self-Direction appears to lie at a pivotal (tension) point, particularly because it cross-loads with Component Two, meaning that it effectively acts as a bridge between social and personal focus dimensions. Importantly, this value category therefore requires further analysis, which may help to identify and explain some of the inherent characteristics of both the case project as a TMO and its various teams/sub-groups.

DISCUSSION

Whilst there has been extensive research on values in different contexts, little to no attempts have been made to explore the role of individuals’ values in TMO projects within construction and how these can be used to harness individual and collective concern for sustainability. Here, we will draw on relevant empirical studies to provide a structure to our preliminary interpretations of the survey findings.

With the exception of a few values categories, there was an overall alignment of values and priorities within the two project sub-groups, and the overall project. Statistical analysis highlighted that ST was consistently the highest scored segment (confirming Schwartz and Bardi’s (2001) results), and the Standard Deviation indicated a strong degree of alignment within the project around this segment. In contrast, SE was judged to be the least important segment. In fact, the ST vs. SE debate has been at the focal point of empirical research around pro-environmental behaviour; ST is very strongly associated with pro-environmental behaviour, whereas SE is not (e.g. Karp 1996; Thøgersen and Ölander 2002). In this study, the results indicate the TMO project team has an innate propensity to behave more positively in relation to sustainability, and the alignment of individuals’ values around the values within this higher order category may be contributing to the project’s sustainability performance (e.g. via decision-making processes). So, future phases of this research will explore this - having completed this SVS and analysed the results, a second empirical phase involving semi-structured

interviews with key actors will be undertaken to characterise the mechanisms through which personal and ‘group’ values work to influence sustainability performance.

The outcomes of the factor analysis outcomes were to a large extent representative of Schwartz’s social vs. personal focus dimension (with the exception of Self-Direction value, which appeared under Component One). With cross-loading exceeding 0.32, it appears that Self-Direction, from a statistical standpoint at least, meaningfully relates to Component Two. This observation can also be seen in the descriptive statistics, which highlighted that OC was the second most important segment within both project and sub-groups. At a category level, whilst aligned at project and sub-group levels, Self-Direction was prioritised considerably higher by the JV team than the Client team. This may signal some unique and/or inherent characteristics of construction projects (generally), notwithstanding probable cultural factors (Fellows and Liu 2008) that may have resulted in this paradox (specifically). More detailed analysis is required to further explore this phenomenon at sub-group levels (i.e. individual contractors and management levels).

Drawing on Glazer *et al.*’s (2004) findings around organisational commitment, may offer helpful insights at this point. Affective commitment (AC) and continuance commitment (CC) have been the subject of increasing research, and are arguably predictable using the SVS. AC is defined as “emotional attachment to, identification with, and involvement in one’s organization”, which is often related to values and objectives congruency of individuals with their organisation (Glazer, *et al.*, 2004: 324). It is thought to be correlated positively with ST and CN values, also referred to as the social focus dimension. In a multi-national study, Glazer *et al.*, (2004) found that AC was positively correlated with social focus values in different countries. There was an exception however (nurses from the UK), which AC found to be more correlated with ST and OC higher-order values.

Our findings do correspond with Glazer *et al.*’s to some extent, in that ST and OC segments were the priorities, but the factor analysis highlighted a fascinating point of tension around the Self-Direction category of the OC segment. Furthermore, the aggregated average scores of social vs. personal focus values (noted in Sortheix and Schwartz 2017) suggested that the project team erred towards a social focus. There is some contradiction here, with Self-Direction likely to be the cause, but such differences and inconsistencies could be related to the highly diverse and multi-national nature of this particular TMO case study. Equally, they may be reflective of intrinsic features in the construction industry, which have previously not been explored in this way.

We acknowledge that these are tentative findings at this stage. These observations will be explored further through our subsequent research, in which the propensity and actual pro-environmental behaviours exhibited by individuals in this case project will be considered through a theoretical framework developed from the SVS results, and data collected by means of semi-structured interviews with key actors.

CONCLUSION

Despite the plethora of empirical studies around values, there remains a gap around the underpinning role of individual actors’ values on sustainability performance in TMOs, which is a particularly meaningful omission in the construction field. Given the often-dynamic and complex nature of such projects, understanding individuals’ values can be a fundamental step in overcoming values-driven challenges and in turn improve project performance. Enacting sustainability is a typical example of a contemporary concern facing the construction industry. Alignment of individual values is associated with

project success and can act as a determinant and predictor of likely project performance, and arguably of sustainability performance. Using the Schwartz Values Survey on a major TMO case study project provided data on individuals' and groups' values. The survey findings corresponded to a great extent with Schwartz's theory and circumplex model, and factor analysis was used to identify two components which are essentially located on the left and right hand sides of the circumplex. However, Self-Direction, as one of the ten values categories appeared to be a point of tension and controversy in the analysis, which is particularly pertinent as some of the specific values it contains are potentially at odds with pro-environmental behaviours. This may ultimately shed light on some inherent characteristics of construction teams, which may be related to sustainability performance. The next stages of the research seek to explore this and develop a framework to manage this interface within construction project teams.

ACKNOWLEDGMENT

We would like to thank the Engineering and Physical Sciences Research Council, and Centre for Innovative and Collaborative Construction Engineering at Loughborough University for provision of a grant (number EP/G/037272) to undertake this research project in collaboration with Action Sustainability.

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