

EXPLORING THE BEHAVIOURS OF CONSTRUCTION PROJECT PARTICIPANTS THROUGH SOCIAL COGNITIVE THEORY

N.A. Ankrah¹, D.G. Proverbs² and D.K. Ahadzie³

^{1,2}*School of Engineering and the Built Environment, University of Wolverhampton, Wolverhampton, WV1 1SB, UK*

³*Centre for Settlement Studies, College of Architecture and Planning, Kwame Nkrumah University of Science and Technology, Kumasi, Ghana*

It has been theorised that human functioning is governed by a triadic reciprocal causal interaction between the cognitive, behavioural and environmental contexts within which people operate. Applying this theory to the construction project context, it can be hypothesised that if the internal dispositions of project participants can be determined and the situational context in which they operate is known, then the behaviours of project participants can be predicted. This hypothesis if valid has significant implications for behaviour management on construction projects, especially in respect of behaviours relating to aspects such as health and safety and collaborative working which are considered priorities on many modern projects. This study thus explores the application and validity of this theory within the construction project context by examining empirical evidence from a number construction projects in the UK to establish if it is possible to predict the behaviour of project participants by examining their perceptions and attitudes on these construction projects and the environmental context under which these projects were undertaken. Although the results generally confirm the hypothesis, it is argued from the lack of overwhelming evidence that efforts to manage behaviours on construction projects must go beyond the cognitive and the situational context set out in the theory. Group dynamics and project outcomes must also be taken into account.

Keywords: behaviour management, construction project organisations, culture, quantitative analysis, social cognitive theory.

INTRODUCTION

It has been theorised in social cognitive theory that human psychosocial functioning is governed by a triadic reciprocal causal interaction between the cognitive, behavioural and environmental or situational contexts within which people operate (Wood and Bandura, 1989). Applying this theory to the construction project context, it can be hypothesised that if the internal dispositions of project participants can be determined and the situational context in which they operate is known, then the behaviours of project participants can be predicted. This hypothesis if valid has significant implications for behaviour management on construction projects, especially in respect of behaviours relating to aspects such as health and safety, effective communication, equality and diversity, and collaborative working for which the UK construction industry is notorious (cf. Egan, 1998; Dainty *et al.*, 2002; Serpell and Rodriguez,

¹ nii.ankrah2@wlv.ac.uk

2002) and which are considered priorities on many modern projects. This study thus explores the application and validity of this theory within the construction project context.

SOCIAL COGNITIVE THEORY

Social cognitive theory originated from social learning theory which fundamentally was a theory of learning based on imitation or behavioural mimicry. According to Parajes (2002), social cognitive theory (SCT) emerged out of the need to recognise the central role of “cognitive, vicarious, self-regulatory and self-reflecting processes in human adaptation and change”. In this theory, human functioning derives from the causal relationship between psychological factors, behaviours and situational factors which operate as interacting determinants that influence each other bi-directionally as illustrated in Figure 1 (Wood and Bandura, 1989; Cooper, 2000; Pajares, 2002).

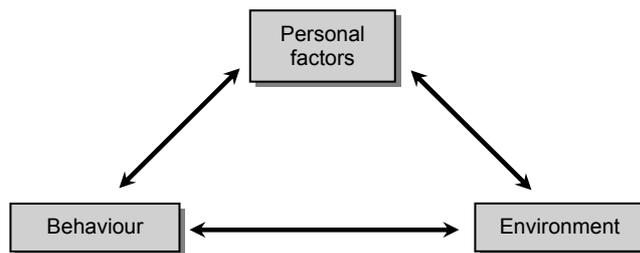


Figure 1 Bandura's reciprocal determinism model [Adapted from Wood and Bandura (1989)]

These relationships illustrated above are not to suggest equality in the degree of influence that the three factors have on each other or that they influence each other simultaneously (Wood and Bandura, 1989). That notwithstanding, it has been argued that the bi-directionality of influence means that situations are as much a function of a person or cognitive factors as a person's behaviour is a function of the situation (Bowers, 1973 in Cooper, 2000), which according to Bandura (1991 in Cooper, 2000) is an indication that people self-regulate their behaviour in so far as they rely on cognitive supports and manage relevant environmental cues and consequences.

This last point is quite relevant from an organisational perspective, and indeed from a construction project perspective where for health and safety and other performance related reasons behaviour management is critical to successful delivery of projects. On construction projects, there are various dimensions of behaviour that affect project outcomes. In the seminal Rethinking Construction report, Egan (1998) identified a number of key behavioural changes that were considered fundamental to achieving the radical changes that construction clients have sought from the construction industry for decades. The five aspects concerned are listed and defined in Table 1 below.

This study focuses on the behaviours associated with client orientation or what Egan (1998) described as a focus on the customer, which is particularly relevant at this time in the light of the recent OFT (Office of Fair Trade) reports into collusion within the UK construction industry (cf. Glancy, 2007). Client orientation as defined in Table 1 encompasses the dimensions; effort put into educating the client, the extent to which client satisfaction is monitored, precedence of client's needs, and the amount of contact and communication between the project organisation and client. It is widely recognised that customer-focus is a precursor to success, and as a result, it has been argued that contractor organisations must be customer-focused, in terms of understanding and fulfilling the expectations of the client (Bryde and Robinson, 2005). In Dainty *et al.*'s (2005) study on the competencies of project managers, high

performing managers were found among other tendencies to show a marked propensity for seeking information about the real, underlying needs of clients, beyond those overtly expressed within contractual documents and terms of appointment. They also exhibited a responsible attitude towards dealing with customer service problems rapidly and efficiently (*ibid*). Clearly these all point to dimensions of behaviour that are appropriate in relation to the client.

Applying SCT to this context would imply in the words of Cooper (2000) that the solutions or choices made by the construction project organisation (CPO) in respect of each dimension, and the effort put into pursuing them are reflected in the "...dynamic reciprocal relationships between members' perceptions and attitudes towards the operationalisation of organisational goals; members' day-to-day goal-directed behaviour; and the presence and quality of organisational systems and subsystems to support the goal-directed behaviour". This implies that assessing a particular dimension of behaviour also requires an assessment of members' perception/attitudes (personal factors) as well as the presence/quality of systems to support such behaviour (environment). In other words, a complete picture of behaviour can only be obtained when all three aspects have been investigated.

Cooper (2000) has demonstrated that this approach has general applicability, and has even applied this to the study of safety culture. If valid within a construction project context, SCT could potentially provide a practical theoretical framework for making sense of project participants behaviours towards clients, and beyond that their behaviour generally on the project. Indeed regardless of whether SCT is valid or not within a construction project context, there could still be important lessons for behaviour management to be learnt.

The social cognitive theory has been applied in a wide variety of context. Beyond reciprocal determinism as discussed above, social cognitive theory has also been applied to explain behavioural capability, expectations, self and collective efficacy, observational learning, and reinforcement (cf. Stajkovic and Luthans, 1998; Bandura, 2001; Parajes, 2002; Bandura, 2002; Sharma, 2005), showing widespread recognition of the strength and applicability of this theory in helping to clarify and make sense of human experiences.

It has been applied widely in drug and alcohol research (cf. Sharma, 2005), in sports and healthcare research (cf. Murnan *et al.*, 2006; Hammer *et al.*, 2007), in organisational behaviour research (cf. Stajkovic and Luthans, 1998), and even as indicated earlier in safety culture research (cf. Cooper, 2000) which is directly relevant for the construction project context.

Table 1: Behavioural changes required in construction based on Egan (1998)

Drivers of change	Definition	Challenge for construction
Committed leadership	About management believing in and being totally committed to driving forward an agenda for improvement and communicating the required cultural and operational changes throughout the whole of the organisation	In construction, this requirement affects constructors, suppliers and designers alike. While many in the construction industry wish to improve company performance, there is no widespread evidence of the burning commitment to raise quality and efficiency necessary
A focus on the customer	In the best companies, the customer drives everything. These companies provide precisely what the end customer needs, when the customer needs it and at a price that reflects the product's value to the customer. Activities which do not add value from the customer's viewpoint are classified as waste and eliminated	The construction industry tends not to think about the customer, but more about the next employer. Companies do little systematic research on what the end-user actually wants, nor do they seek to raise customers' aspirations and educate them to become more discerning. The industry has no objective process for auditing client satisfaction
Integrate the process and the team around the product	The most successful enterprises do not fragment their operations - they work back from the customer's needs and focus on the product and the value it delivers to the customer. The process and the production team are then integrated to deliver value to the customer efficiently and eliminate waste in all its forms	The industry typically deals with the project process as a series of sequential and separate operations undertaken by individual designers, constructors and suppliers who have no stake in the long term success of the product and no commitment to it. Changing this culture is fundamental to increasing efficiency and quality in construction
A quality driven agenda	Quality means not only zero defects but right first time, delivery on time and to budget, innovating for the benefit of the client and stripping out waste in design, materials and construction on site. It also means after-sales care and reduced cost in use. Quality means exceeding customer expectations and providing real service	The industry rightly complains about the difficulty of providing quality when clients select designers and constructors on the basis of lowest cost and not overall value for money. But it must understand what clients mean by quality and break the vicious circle of poor service and low client expectations by delivering real quality
Commitment to people	This means not only decent site conditions, fair wages and care for the health and safety of the work force. It means a commitment to training and development of committed and highly capable managers and supervisors. It also means respect for all participants in the process, involving everyone in sustained improvement and learning, and a no-blame culture based on mutual interdependence and trust	Construction does not yet recognise that its people are its greatest asset. Too much talent is simply wasted through failure to recognise the significant contribution that suppliers can make to innovation. Construction cannot afford not to get the best from the people who create value for clients and profits for companies

METHODOLOGY

A two-stage research strategy was adopted in line with Hofstede *et al.* (1990), Denison and Mishra (1995) and van den Berg and Wilderom (2004). In the first stage, exploratory semi-structured interviews were conducted with experienced practitioners working within the industry to draw out the important dimensions relating to client orientation within the construction project context. Nine interviews were conducted with experienced practitioners representing construction organisations operating out of the West Midlands (UK) with an average of 22 years working experience. Average duration of these interviews was circa 50 minutes. Interviews were recorded, transcribed and analysed using the template approach involving the examination of interview transcripts for common themes and sub-themes using an analysis guide or 'codebook' derived from the literature (King, 1994). To facilitate the analysis, the NVivo NUDIST software was employed for coding, organising, linking, and exploring the transcripts.

The dimensions raised by the interviewees in relation to client orientation were communication, client education, respect for client, sensitivity to client/customer's needs, and monitoring client satisfaction, all of which are consistent with the dimensions identified in Egan (1998). Indeed, these are further reinforced by the CRISP Culture and People Task Group (CRISP, 2002) report on a research strategy for culture and people in construction. These dimensions therefore formed the core set of items around which a questionnaire survey was undertaken.

In the second stage, a quantitative approach was adopted involving a survey research design with data collected by means of a questionnaire survey of contractors. The unit of analysis was the construction project. The questionnaire was designed to elicit information about recently completed projects in respect of project features, and also in line with the SCT, information on:

1. Perceptions and attitudes towards organisational goals in respect of the dimension;
2. Day-to-day goal-directed behaviour in respect of the dimension; and
3. The organisational systems, subsystems and processes that exist to support the goal-directed behaviour.

The appendix shows the aspects of attitudes/perceptions, behaviours and situational context assessed through this questionnaire survey. The sampling frame used in the survey was drawn from a database of contractors listed in the UK Kompass (2006) register. A total of 551 questionnaires were mailed out to participants for completion. 85 were returned representing an overall response rate of 15.42% and a 10.63% margin of error.

ANALYSIS OF RESULTS

Table 2 summarises the types of projects that were captured in the questionnaire survey. As can be seen, the projects were classified *inter alia* on the basis of type of client and type of facility constructed. The number of cases in each category is shown together with the percentage equivalent. It can be seen from Table 2 that private sector new work in the building category constituted the biggest proportion of projects captured in this survey. A majority of these projects were either housing or commercial facilities. This outcome is consistent with DTI data (cf. DTI, 2005).

In terms of location, all the UK regions were represented as shown in Table 2. Contract prices ranged from £15K to £100M with durations from three weeks to five years. This is a reflection of the range of projects undertaken in the construction industry, from simple jobbing projects to complex mega projects. Median contract price and duration of the projects were between £0.86M – £2.00M and 9 – 12 months respectively, consistent with RICS (2006) and DTI (2005). The performance ethos was in the order; health and safety (H&S)–quality–cost–time with H&S as most important and time as least important objective.

Table 2: The composition of project types in the sample

Project type	Projects surveyed		Location	Projects surveyed	
	Count	%		Count	%
Public	31	44	G. London	8	9.5
Private	40	56	South East	11	13.1
Total	71	100	South West	5	6.0
New work	41	59	Wales	5	6.0
Refurbishment	20	29	West Midlands	17	20.2
Redevelopment	7	10	East Midlands	9	10.7
Demolition	1	1	East Anglia	3	3.6
Total	69	100	Yorkshire & Humber	5	6.0
Civil engineering	16	22	North East	6	7.1
Building	57	78	North West	3	3.6
Total	73	100	Scotland	10	11.9
Commercial	18	26	Northern Ireland	2	2.4
Industrial	7	10	Total	84	100
Housing	16	23			
Infrastructure	9	13			
Leisure	3	4			
Education	7	10			
Mixed use	7	10			
Health	2	3			
Total	69	100			

Comparison of attitudes/perceptions, behaviours and the situational context

Respondents were asked to indicate the extent to which certain attitudes/perceptions, behaviours and conditions existed on the construction project in relation to the client orientation dimensions. Orientations were assessed on a scale of 1 to 5, with 1 representing a low orientation and 5 representing a high orientation. Means and standard deviations for each of the six dimensions assessed are summarised in Table 3.

Table 3: Mean scores on attitudes/perceptions (A), behaviours (B) and situational context (S)

Dimension	A			B			S		
	N	Mean	Std.	N	Mean	Std.	N	Mean	Std.
C1 Contact & communication	83	4.13	.972	80	4.34	1.090	79	4.06	1.102
C2 Research into end-user needs	83	3.78	1.159	81	3.46	1.130	82	3.70	.898
C3 Educating client	80	3.29	1.046	80	3.78	1.043	79	3.49	.985
C4 Monitoring satisfaction	81	4.00	.987	81	3.90	.982	78	3.55	1.028
C5 Precedence of client's needs	81	3.64	1.052	80	3.95	1.030	79	3.65	.988
C6 Respect for client	81	4.32	.906	80	4.66	.810	80	4.04	.892

The means in Table 3 seem to indicate overall that there is a high degree of client orientation among project participants. It also appears to indicate some association between attitudes/perceptions, behaviours and the situational context for all the dimensions. If SCT is to be applied as a basis for exploring behaviours within the construction project context, then it must be shown that real relationships exist between these elements. Therefore to confirm whether the apparent associations in Table 3 are significant or not, and to further check the usefulness of attitudes/perceptions and the situational context as a basis for predicting behaviour as an outcome variable, and the magnitude of effect of the individual predictor variables,

multiple regression was applied to the data (Field, 2000). Six regression models were produced for the six dimensions of client orientation, with the variables selected for inclusion in the models by stepwise selection. Results are presented in Table 4 below.

Table 4: Regression models for the six dimensions of client orientation based on stepwise selection

Model	Regression model	R	R ²	Adjusted R ²	Std. Error of the Estimate	VIF	Durbin-Watson
C1	B = 1.358 + .337A + .389S	.546	.298	.280	.929	1.056	2.235
C2	B = .340 + .466A + .362S	.642	.412	.396	.873	1.136	1.872
C3	B = 2.668 + .323A	.327	.107	.095	.984	1.000	2.158
C4	B = 2.801 + .302S	.315	.099	.087	.941	1.000	2.087
C5	B = 2.632 + .358S	.343	.118	.106	.973	1.000	1.740
C6	B = 3.718 + .224A	.256	.066	.053	.776	1.000	1.816

B = Behaviour; A = Attitudes/perceptions; S = Situational context

These results clearly indicate that there is indeed some association between attitudes/perceptions, the situational contexts and behaviours relating to all six dimensions of client orientation. In some case, as in models C1 and C2, both attitudes/perceptions and situational context are useful predictors of behaviour. For models C3 and C6, only attitudes/perceptions are useful predictors of behaviour, whilst for models C4 and C6, only situational contexts are useful predictors of behaviour. Regardless of the mix of outcomes, these outcomes are broadly consistent with the theoretical framework underpinning this research and provide some evidence attesting to the validity and applicability of SCT within a construction project context. Indeed the mix of models provides evidence to support the contention by Wood and Bandura (1989) that bi-directional interaction of the three factors as proposed by the theory does not mean equality in the degree of influence that the three factors have on each other or that they influence each other simultaneously. Significantly, all the coefficients in the models are positive, indicating positive relationships between the attitudes/perceptions and the situational contexts, and the behaviours. In short this implies (depending on the model) that when there is an improvement in appropriate or supportive attitudes and/or situational contexts, there is a corresponding improvement in behaviours on the project. Admittedly, regression does not prove causation. However the fact that there is an association which is not due to chance is significant.

It is also significant to note from Table 4 that for all the six models obtained, the highest R² value obtained was 41% and the lowest was about 7%. This implies that the highest amount of variance in behaviour that can be accounted for by the personal and environmental factors in the data is 41%. This is significant to the extent that it suggests that beyond the concept of reciprocal determinism, there may be other influences that must be taken into account when exploring behaviours within construction project organisations. Indeed other relevant cognitive as well as environmental cues affecting behaviour may not have been reflected in the multiple regressions.

DISCUSSION

From the results presented, it can be seen that social cognitive theory has some applicability within the construction project context. The evidence confirms an association between personal factors, situational contexts and behaviours within the construction project organisation indicating that the triadic reciprocal relationships

purported by the SCT are valid. Bandura (2004) and later Sharma (2005) identified the primary constructs underpinning this theory as including knowledge, self-efficacy or behaviour specific confidence, outcome expectations about expected costs and benefits for different habits, goals that people set for themselves, and perceived facilitators and impediments. Bringing these constructs into a construction project context, it may be argued that to stimulate behaviour change in relation to client orientation (and beyond) on construction projects, any efforts to be applied must be directed towards these five primary constructs. This is what will engender the cognitive and environmental conditions for change. Indeed most current efforts to stimulate behavioural change already focus on these constructs. For instance the focus of all the training provided for project participants including toolbox talks during project execution, is to develop the construct of knowledge, which is a cognitive or personal factor that influences behaviour. Incentivisation is also often provided to improve outcome expectations, which again is an attempt to influence both situational context and cognitive factors in such a way as to stimulate behavioural change.

Adapting Sharma's (2005) arguments to client orientation in a construction project context, it can be stated that knowledge of the challenges and benefits of a client focused approach is a prerequisite for behaviour change. This calls for on-going education of project participants on the need for a client-focused approach and the benefits to all concerned of adopting such an approach. Similarly, self-efficacy is a fundamental requirement. According to Wood and Bandura (1989) self-efficacy can be strengthened through mastery experience, modelling and social persuasion. Outcome expectations relate to physical outcomes, social outcomes of (dis)approval, and positive and negative self-evaluation reactions (Sharma, 2005). If project participants perceive that some benefits (or costs) will emerge from adopting different behaviours towards clients, then this will influence their habits. A further construct is the goals that project participants set for themselves. This is what will establish the direction of behavioural change. Goals set by the team must preferably be explicit on the degree of client focus to be achieved. The fifth construct – perceived facilitators and impediments, requires project participants to understand the constraints such as the contracts within which they operate and the available resources into which they can tap.

From the foregoing discussions, it can be seen that the constructs underpinning SCT generally align with cognitive (personal) and environmental (situational context) factors. To the extent that project participants rely on cognitive and environmental cues to determine their behaviour as confirmed by the results from the regression, and as argued in Hofstede (1981), it can be concluded that this SCT framework offers a useful systematic approach for evaluating and clarifying behaviours in relation to client orientation, and indeed behaviours generally, and for stimulating a measure of behavioural change. This has significant implications for behaviour management generally on construction projects, and especially in respect of behaviours relating to aspects such as health and safety and collaborative working which are considered priorities on many modern projects.

However as already highlighted, the evidence from the regression modelling in relation to the broad applicability of SCT within a construction project context was far from overwhelming. It can be argued therefore that efforts to manage behaviours on construction projects must go beyond the cognitive and the situational contexts explored in this study. Other factors like group dynamics, role of change agents and actual project outcomes may be relevant and as such must also be taken into account.

Though indirect, these drivers also impact on the five constructs identified by Bandura (2004), and by extension also impact on the cognitive and environmental aspects. For instance it may be argued that group dynamics may result in verbal and social praises which affect cognitive aspects leading to greater effort (cf. Inman, 2001). Again as argued in Inman (2001), how individuals interpret performance outcomes informs and alters their environments and their self-beliefs.

CONCLUSIONS

This study has demonstrated that there is scope for the application of social cognitive theory (SCT) to stimulate behavioural change among project participants. SCT argues that behaviour exists in a bi-directional or reciprocal relationship with personal factors and environmental factors, thus providing a practical theoretical framework for clarifying and managing behaviours. This framework is underpinned by the constructs knowledge, self-efficacy, outcome expectations, goals, and perceived facilitators and impediments. These constructs represent the personal and environmental factors that need to be changed to stimulate behavioural change within the construction project context and require the involvement of the individual, and relevant others to bring about the change. Beyond these factors, it is also argued that other factors borne out of group dynamics and actual outcomes, will come into play.

REFERENCES

- Bandura, A. (2004) Health promotion by social cognitive means, *Health Education and Behavior*, **31**(2), 143-164.
- Bryde, D. J. & Robinson, L. (2005) Client versus contractor perspectives on project success criteria, *International Journal of Project Management*, **23**(8), 622.
- Cooper, M. D. (2000) Towards a model of safety culture, *Safety Science*, **36**, 111-136
- CRISP Culture and People Task Group (2002) Culture and people in construction: a research strategy, *CRISP Report*, UK.
- Dainty, A. R. J., Bagilhole, B. M. & Neale, R. H. (2002) Coping with construction culture: A longitudinal case study of a woman's experiences of working on a British construction site *In: Fellows, R. & Seymour, D. E., Perspectives on culture in construction*, CIB Report, **275**, 221-237.
- Dainty, A., Cheng, M.-I. & Moore, D. (2005) A comparison of the behavioral competencies of client-focused and production-focused project managers in the construction sector, *Project Management Journal*, **36**(2), 39.
- Denison, D. R. & Mishra, A. K. (1995) Toward a theory of organizational effectiveness, *Organization Science*, **6**(2), 204-223.
- DTI (2005) *Construction Statistics Annuals 2005*, Department of Trade and Industry (HMSO), London.
- Egan, J. (1998) *Rethinking construction*, Construction Task Force, London, HMSO.
- Field, A. P. (2000) *Discovering statistics using SPSS for Windows: advanced techniques for the beginner*, London; Thousand Oaks, Sage Publications.
- Glancy, L (2007) OFT accuses 112 firms of 'bid rigging', *Construction News*, http://www.cnplus.co.uk/regions/eastmidlands/news/2008/04/oft_accuses_112_firms_of_bid_rigging.html [Accessed 17/04/07]
- Hammer, C., Degerfeldt, L. & Denison, E. (2007) Mechanical diagnosis and therapy in back pain: compliance and social cognitive theory, *Advances in Physiotherapy*, **9**, 190-197.

- Hofstede, G (1981) Culture and organizations, *International Studies of Management and Organization*, **10**(4), 15-41
- Hofstede, G., Neuijen, B., Ohayy, D. D. & Sanders, G. (1990) Measuring organizational cultures: A qualitative and quantitative study across twenty cases, *Administrative Science Quarterly*, **35**(2), 286-316.
- Inman, J. (2001) Social cognitive theory: A synthesis. Retrieved May 2008, from <http://www.wetherhaven.com/Documents/socialcognitivetheory.pdf>,
- King, N. (1994) The Qualitative Research Interview, *In: Cassell, C. and Symon, G. (Eds.) Qualitative methods in organizational research: a practical guide*, London; Thousand Oaks, Calif., Sage Publications.
- Kompass (2006) *Kompass: the authority on British industry. [Vol.1]. Products and services*, East Grinstead: Reed Information Services.
- Murnan, J., Sharma, M and Lin, D. (2006). Predicting Childhood Obesity Prevention Behaviors Using Social Cognitive Theory: Children in China, *International Quarterly of Community Health Education*, **26**(1), 73-84.
- Pajares, F. (2002) *Overview of social cognitive theory and of self-efficacy*, <http://www.emory.edu/EDUCATION/mfp/eff.html>, [01/07/05].
- RICS (2006) *Contracts in use: A survey of building contracts in use during 2004*, London, The Royal Institution of Chartered Surveyors.
- Serpell, A. F. & Rodriguez, D. (2002) Studying construction organisational culture: Preliminary findings, *In: Fellows, R. F. & Seymour, D. E. (Eds.) Perspectives on culture in construction*, CIB Report, **275**, 76-91.
- Sharma, M. (2005) Enhancing the effectiveness of alcohol and drug education programs through social cognitive theory, *Journal of Alcohol & Drug Education*, **49**(3), 3(5).
- Stajkovic, A. D. & Luthans, F. (1998) Social cognitive theory and self-efficacy: Going beyond traditional motivational and behavioural approaches, *Organizational Dynamics*, 62-74.
- Van Den Berg, P. T. & Wilderom, C. P. (2004) Defining, Measuring, and Comparing Organisational Cultures, *Applied Psychology*, **53**(4), 570-582.
- Wood, R. & Bandura, A. (1989) Social cognitive theory of organizational management, *Academy of Management Review*, **14**(3), 361-384.

APPENDIX

Aspects of attitudes/perceptions (A), behaviours (B) and situational context (S) assessed in the questionnaire survey

Dimension	A	B	S
	How important was it to the project organisation:	During this project:	Project arrangements were such that:
C1 Contact & communication	To have lots of contact and communicate with the client	There was very little contact or communication with client	There was restricted access to the client to discuss project-related issues
C2 Research into end-user needs	To listen to the client/customers and identify their real wants and needs	Participants listened to the client and were able to identify their needs	Participants were always able to check the client's wants/needs
C3 Educating client	To educate the client on the construction project and processes	The client was kept educated on the project and its processes	There were opportunities to educate the client on project delivery process
C4 Monitoring satisfaction	To monitor the satisfaction of the client	The satisfaction of the client was monitored at all times	There were systems and procedures for monitoring client satisfaction
C5 Precedence of client's needs	That the client's needs took precedence over the needs of all participants	Other considerations were put first before the client's needs	Participants could prioritise their own needs instead of the client's needs
C6 Respect for client	To respect the client	The client was shown little respect	Respect for client was emphasised throughout the project organisation