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Predictor Role of Profession in Explaining Personal Value Priorities and Conflicts between Construction Stakeholders

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Abstract

This study investigated the relationship between "profession" and personal values to explain the potential conflicts between various groups of construction stakeholders. In this study, personal values of three professional groups of project consultants including architects, engineers, and quantity surveyors were assessed through questionnaire survey in the Malaysian construction industry. Using comparative analysis, the personal value priorities and conflicts between these professional groups of stakeholders were identified. The research findings indicated dissimilar patterns of personal values which explain potential conflicts between the stakeholders with different professions in the Malaysian construction industry. Therefore, this research confirmed the predictor role of "profession" variable in explaining personal values although this relationship was an ambiguous issue in the extant literature. This research, through identifying the value priorities of different groups of construction stakeholders, provides better understanding of their different needs, expectations, and preferences which would help project managers to have better perception of the potential conflicts between these groups of construction stakeholders.

Keywords: Construction stakeholders, project consultants, profession, personal values, conflict.

Paper type: Research article

Introduction

Conflict between project stakeholders is known as one of the main factors endangering the outcomes of construction projects (Loosemore, Nguyen and Denis, 2000; Femi, 2014). A construction project is considered as an endeavour that must be successfully accomplished and it is the duty of construction stakeholders to accomplish this. It means, in a construction project, various groups of stakeholders with different needs, values, and expectations gather together to fulfil set goals and objectives (Cakmak and Cakmak, 2014). Therefore, as long as there are differences in needs, preferences, values, and expectations among the construction stakeholders, conflicts are inevitable (Cakmak and Cakmak, 2014) and, as Gardezi, Shafiq and Khamidi (2013) state, the construction industry is well known for its high level of inter-personal conflicts.

Understanding the nature of stakeholders' relationships and potential conflicts among them is directly related to recognizing the antecedents of the stakeholders' attitudes and those conflicts

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which could be found in differences in values (Leung and Liu, 2003). Values are conceptions of the desirable that guide the way people select actions, evaluate others and events, and explain their actions and evaluations (Schwartz, 2012). Therefore, values are vital to understanding the meaning that people place on work (Ceja and Tàpies, 2011) and the degree of satisfaction they find when they "fit" in their workplace (Rounds, Dawis and Lofquist, 1987; Ahmad, 2010). Pruzan (1998) argues that values are a critical management tool in this post-industrial economy which is characterized by complex organizations inhabited by knowledge stakeholder. According to Pruzan (1998), what is needed in this environment is a value-based management that inspires and motivates stakeholders by determining the rational objectives which fit with their personal values (Ceja and Tàpies, 2011).

Personal value conflicts is the agenda of this paper. This research aimed to identify personal value priorities and potential value conflicts between the construction stakeholders with different professions to answer the question of whether personal value conflicts between different groups of construction stakeholders exist as the function of "profession" variable. Although the values' literature from the research conducted on the relationship between personal values and demographic variables like "age", "gender", "marital status", etc. is rich (Gibson and Schwartz, 1998; Schwartz, 2012; Ueda and Ohzono, 2013), the literature indicates that there is a lack of knowledge and effective investigation about the relationship between personal values and "profession" variable. Indeed, the limited research which concerned this issue, considered personal values in terms of specific characteristics of the profession and did not compare the personal values in different professions (Dinger, Thatcher and Stepina, 2010; Chang, Choi, and Kim , 2008; Cooman et al., 2008; Hegney et al., 2006; Hagstrom and Kjellberg, 2007). Values are placed at the center of cultural differences (Hofstede, 1980), and cultural differences exist not only at national or organizational levels, but also at the professional level. Different job experiences impress on workers the need to have specific personal values consistent with the requirements of their professions. Furthermore, people might tend to choose a specific profession in order to accomplish their own personal values. Accordingly, in order to fill the gap in the literature to identify the personal values of professional construction stakeholders, and to find the potential value conflicts among them, this study identified and compared personal values of architects, engineers and quantity surveyors in the Malaysian construction industry.

Literature Review

Conflict is inevitable among humans (Rahim, 2015). When two or more social entities (i.e. individuals, groups, organizations, and nations) contact each other in order to achieve their objectives, it is always possible that their relationships become incompatible or inconsistent. This incompatibility and inconsistency could be the result of having similar desires about a limited or rare resource, having exclusive behavioural preferences about their joint action or having different values, attitudes, needs, and skills. Indeed, as Thompson (1998) states, "conflict is the perception of differences of interests among people" (p. 4).

As mentioned, conflict can be the result of differences in values. As a comprehensive definition, values are "conceptions of the desirable that guide the way social actors, select actions, evaluate people and events, and explain their actions and evaluations" (Schwartz, 1999, p. 24). Values affect evaluations, attitudes, moral judgments, decisions, and social action. Indeed, the outer behaviour of a person is determined by the intrinsic qualities of values. People try to reach these qualities in objects they acquire, in activities in which they engage, in situations they live through, in principles they cultivate, in evaluations they make, and in professions they choose. Therefore, values can be considered as the prime drivers of personal, professional, and social choices (Maksimainen, 2012).

The value conflicts between employees have been well-studied in the literature from various perspectives. For instance, Gibson and Schwartz (1998) assessed the relationship between "gender" and personal values. They demonstrated that men more than women attribute importance to power values in particular and also to achievement, hedonism, stimulation and self-direction values. Women attribute more importance than men especially to benevolence values and also to universalism, conformity, and security values. These dissimilarities in men's and women's motives and orientations are likely to find expression as value conflicts. In another study, Schwartz (2012) found a significant correlation between "age" and the value priorities and conflicts. The analyses demonstrated the positive correlations of age with security, tradition, and conformity values. The correlation coefficients demonstrated that among the aforementioned values, tradition had the most significant positive relationship with age. The analyses also implied that stimulation, hedonism, achievement, and power values correlate most negatively with "age" (Li, Liu and Wan, 2008). In another study which assessed the relationship between "marital status" and personal values, Ueda and Ohzono (2013) demonstrated that married persons show higher levels of personal values for accomplishment, contribution, power and authority, and monetary rewards than unmarried persons, indicating conflicts between them.

The aforementioned examples provide a sharp picture of the relationship between demographic variables like gender, age, and marital status, and value priorities and potential conflicts of the employees. But, the literature indicates that there is a lack of knowledge and effective research in terms of the relationship between "profession" variable and personal values. Some studies have focused exclusively on specific professions like IT professionals (Dinger, Thatcher and Stepina, 2010), engineers (Munson and Posner, 1979; Wnek and Williamson, 2010; Koth, 2011; Daniela et al., 2013), R&D professionals (Chang, Choi and Kim, 2008), architects (Bond et al., 2004; Nelson and Shavitt, 2002; Svee, 2014), quantity surveyors (Fan, Ho and Ng, 2001; Alfred, 2007; Bowen et al., 2007) and nurses (Cooman et al., 2008; Hegney, Plank and Parker, 2006). Most of them explained personal values in terms of specific characteristics of the profession and did not generalize their findings beyond that profession. Among them, a study by Hagstrom and Kjellberg (2007) can be considered as an exception, as it compared the personal values of nurses and engineers.

Aside the lack of knowledge in terms of value priorities and potential conflicts of different professional groups in the general literature and organizational behaviour; there is also as a lack of literature related to the construction industry. This confirms the necessity for further investigation into personal value conflicts between the professional construction stakeholders. Although conflict has been the agenda for research in the context of construction industry for a long time (i.e. Brockman, 2012; Cakmak and Cakmak, 2014; Jaffar, Tharim and Shuib, 2011; Leung, Yu and Liang, 2013; Senaratne and Udawatta, 2013; Tashi and Peansupap, 2013; Mitkus and Mitkus, 2014; Femi, 2014), but the authors have considered conflict from different perspectives such as conflict management styles applicable in construction projects, financial problems caused by conflict, conflict and dispute, potential ways to reduce conflict etc. Indeed, the literature indicates that there is a lack of knowledge about conflict from the perspective of values in the context of construction industry (Leung, Yu and Liang, 2013).

The assessment of personal values of construction stakeholders is an embryonic topic. Although some scholars particularly focused on personal values of construction participants (i.e. Munson and Posner, 1979; Daniela et al., 2013; Bond et al., 2004; Nelson and Shavitt, 2002; Svee, 2014; Fan, Ho and Ng, 2001; Alfred, 2007; Bowen et al., 2007), but the study of Thomson and Austin (2006) can be considered as the most specific attempt to assess personal values of construction stakeholders. Thomson and Austin (2006) introduced VALiD (value in design) in UK construction industry. VALiD is an approach to value delivery that integrates stakeholder judgment into the design process. It runs alongside existing project practices to provide insights into stakeholders' views of value and allows assessments of project performance (Thomson and

Austin, 2006). However, VALiD does not generalize the value perception and does not compare the different value priorities to find the potential value conflicts between the construction stakeholders.

Conclusively, personal values are likely to differ according to profession, but still more investigation on the topic is indispensable. Accordingly, this research was conducted in order to fill the gap in the extant literature and to provide better understanding of value priorities and value conflicts of different professional groups of construction stakeholders.

Method

The instrument

This research was conducted through quantitative method using questionnaire survey. There were several quantitative instruments to measure personal values like Rokeach Value Survey (RVS) (Rokeach, 1973), Work Values Inventory (WVI) (Super, 1973), Schwartz Value Survey (SVS) (Schwartz, 1992), and Work-Organizational Value Survey (WOVS) (De Clercq, 2007). One of the most popular and applicable instruments is WOVS which was structured on the basis of De Clercq's value model. The comprehensive value model by De Clercq (2007) which was inspired from the universal theory of Schwartz (1992) comprises 15 motivational goals or value types representing the values in work and organizational context (see Table 1).

Table 1: Definitions of 15 motivational types of values in terms of their goals

Value	Definition
Achievement	Personal success through demonstrating competence according to social standards.
Benevolence	Preservation and enhancement of the welfare of people with whom one is in frequent personal contact.
Conformity	Restraint of actions, inclinations, and impulses likely to upset or harm others and violate social expectations or norms.
Goal-orientedness	Living and working to fulfil a purpose, not giving up.
Hedonism	Pleasure and sensuous gratification for oneself.
Materialism	Attaching importance to material goods, wealth, and luxury.
Power	Control or dominance over people.
Prestige	Striving for admiration and recognition.
Relations	Having good interpersonal relations with other people and valuing true friendship.
Security	Safety, harmony, and stability of society, of relationships, and of self.
Self-direction	Independent thought and action-choosing, creating, and exploring.
Social-commitment	Preservation and enhancement of the welfare of all people.
Stimulation	Excitement, novelty, and challenge in life.
Tradition	Respect, commitment, and acceptance of the customs and ideas that traditional culture or religion provide the self.
Universalism	Broadmindedness, appreciation, and protection of nature and beauty.

These empirical types were interpreted as being ordered along four higher-order value types which form two bi-polar higher-order value dimensions that also point at the value conflicts

between pairs of values. The first dimension contrasts self-enhancement with self-transcendence values. Self-enhancement values (i.e. power and achievement) emphasize the pursuit of self-interest, whereas self-transcendence values (i.e. universalism and benevolence) involve a concern for the welfare and interests of others. The second dimension contrasts openness to change with conservation. Openness to change values (i.e. self-direction and stimulation) emphasize independent actions, thoughts and feelings, and a readiness for new experiences whereas conservation values (i.e. security, conformity and tradition) emphasize self-restriction, order and resistance to change (Schwartz and Boehnke, 2004; Sverdlik, 2012). The circular structure in Figure 1 displays the total pattern of relations of conflict among values postulated by the theory.

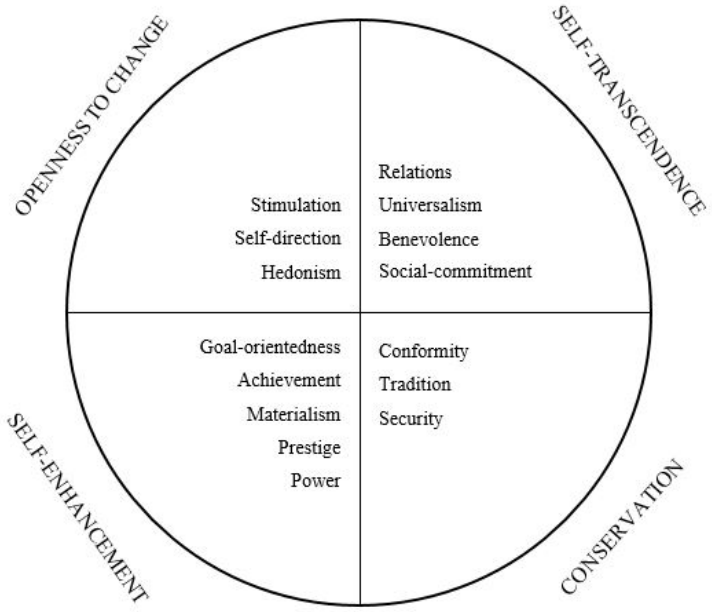

Figure 1: Theoretical model of relations among 15 motivational types of values by De Clercq

Using a comprehensive value model enabled the instrument to find different relationships between personal values and conflict (De Clercq, 2007). These qualifications of the De Clercq's (2007) comprehensive value model provided the required tools to achieve the research objective. Accordingly, the research instrument was an adapted version of De Clercq's (2007) WOVS questionnaire which was developed and optimized to consider the characteristics of the construction industry. Therefore, the final version of the questionnaire comprising 70 value items was established. In order to measure the responses, a Likert scale was used changing from 1 (not important) to 5 (extremely important).

Sample

This research targeted professional consultants of the Malaysian construction industry including architects, engineers, and quantity surveyors. These people were selected according to their important involvement and their impact on the decisions made during the process of the construction project procurement. Using online distribution, 5,156 questionnaires were sent to the email addresses of the eligible respondents between March and August 2014 (5 months). In total, 627 questionnaires were received (12% response rate), but according to screening criteria (missing, outliers and meaningless data) this number was reduced to 428 answered questionnaires. The minimum reliable sample size for this research with 95% confidence level

was 400 respondents referring to De Vaus (2013) who argued that for a large population, 400 respondents possess 5% sampling error which is considered in this research. Therefore, using stratified random sampling, 168 engineers, 152 architects, and 80 quantity surveyors were selected randomly. It must be noted that the number of respondents in each groups was based on their proportion in the aggregate population structure (42% engineers, 38% architects, and 20% quantity surveyors). Furthermore, the number of respondents was reduced from 428 to 400 due to keeping the presupposed proportional structure for each stratum in the sample size. Table 2 presents the demographic information of the respondents.

Table 2: Demographic information

Demographic Variables	Categories	Frequency (%)	Frequency in Each Groups
Gender	Male	247 (61.75)	84 Architects 107 Engineers 56 Quantity Surveyors
	Female	153 (38.25)	68 Architects 61 Engineers 24 Quantity Surveyors
Age	18-29	83 (20.75)	30 Architects 35 Engineers 18 Quantity Surveyors
	30-49	213 (53.25)	75 Architects 101 Engineers 37 Quantity Surveyors
	50-64	98 (24.50)	43 Architects 30 Engineers 25 Quantity Surveyors
	65+	6 (1.50)	4 Architects 2 Engineers - Quantity Surveyors
Marital Status	Single	96 (24)	37 Architects 34 Engineers 25 Quantity Surveyors
	Married	304 (76)	115 Architects 134 Engineers 55 Quantity Surveyors
Level of Education	Undergraduate	293 (73.25)	121 Architects 126 Engineers 46 Quantity Surveyors
	Postgraduate	107 (26.75)	31 Architects 42 Engineers 34 Quantity Surveyors

N = 400

Analysis

To identify the value priorities and to find the value conflicts of the construction stakeholders (architects, engineers, and quantity surveyors), ANOVA was performed. Through conducting ANOVA, Post Hoc analysis helping Tukey test in significant level of 0.95 (cut-off point $p<0.05$)

was applied. Table 3 reports descriptive statistics of the professional groups based on the 15 value types.

Table 3: Descriptive statistics of the 15 value types

Value	Profession	N	Mean	Std. Dev.
Stimulation	Architect	152	4.09	0.73
	Engineer	168	3.53	0.74
	Quantity surveyor	80	3.04	0.86
	Total	400	3.59	0.91
Self-direction	Architect	152	3.59	0.78
	Engineer	168	3.62	0.69
	Quantity surveyor	80	3.45	0.66
	Total	400	3.64	0.82
Hedonism	Architect	152	3.61	0.88
	Engineer	168	3.43	0.64
	Quantity surveyor	80	3.24	0.76
	Total	400	3.46	0.89
Conformity	Architect	152	3.25	0.73
	Engineer	168	3.29	0.77
	Quantity surveyor	80	3.43	0.91
	Total	400	3.38	0.94
Tradition	Architect	152	2.81	0.92
	Engineer	168	2.76	1.01
	Quantity surveyor	80	2.92	0.78
	Total	400	2.89	0.95
Security	Architect	152	3.18	0.85
	Engineer	168	3.23	0.77
	Quantity surveyor	80	3.83	0.61
	Total	400	3.47	0.89
Relations	Architect	152	3.75	0.66
	Engineer	168	3.27	0.82
	Quantity surveyor	80	3.38	0.79
	Total	400	3.51	0.84
Universalism	Architect	152	3.86	0.77
	Engineer	168	3.21	0.67
	Quantity surveyor	80	2.76	0.85
	Total	400	3.32	0.86
Benevolence	Architect	152	3.70	0.69
	Engineer	168	3.38	0.76
	Quantity surveyor	80	3.52	0.88
	Total	400	3.60	0.85
Social-commitment	Architect	152	3.48	0.88
	Engineer	168	3.29	0.86
	Quantity surveyor	80	3.31	0.81
	Total	400	3.41	0.94
Goal-orientedness	Architect	152	2.91	0.69
	Engineer	168	3.75	0.74
	Quantity surveyor	80	3.61	0.73
	Total	400	3.49	0.80
Achievement	Architect	152	3.39	0.91
	Engineer	168	4.12	0.86
	Quantity surveyor	80	3.84	0.87
	Total	400	3.83	0.93
Materialism	Architect	152	2.93	0.86
	Engineer	168	3.36	0.61
	Quantity surveyor	80	3.63	0.72
	Total	400	3.37	0.84
Prestige	Architect	152	3.14	0.67
	Engineer	168	3.55	0.89
	Quantity surveyor	80	3.83	0.86
	Total	400	3.56	0.93
Power	Architect	152	2.86	0.89
	Engineer	168	3.84	0.88
	Quantity surveyor	80	3.69	0.75
	Total	400	3.53	0.91

As Table 3 indicates, the standard deviations were normal in total. The mean scores indicated that the priority of the 15 values for architects included: stimulation (4.09), universalism (3.86), relations (3.75), benevolence (3.70), hedonism (3.61), self-direction (3.59), social-commitment (3.48), achievement (3.39), conformity (3.25), security (3.18), prestige (3.14), materialism (2.93), goal-orientedness (2.91), power (2.86), and tradition (2.81).

The values' priority for engineers included: achievement (4.12), power (3.84), goal-orientedness (3.75), self-direction (3.62), prestige (3.55), stimulation (3.53), hedonism (3.43), benevolence (3.38), materialism (3.36), social-commitment (3.29), conformity (3.29), relations (3.27), security (3.23), universalism (3.21), and tradition (2.76).

Finally, the values' priority for quantity surveyors included: achievement (3.84), prestige (3.83), security (3.83), power (3.69), materialism (3.63), goal-orientedness (3.61), benevolence (3.52), self-direction (3.45), conformity (3.43), relations (3.38), social-commitment (3.31), hedonism (3.24), stimulation (3.04), tradition (2.92), and universalism (2.76).

Table 4 reports the results generated by ANOVA which compared the mean scores in order to find any potential value conflicts between the professional groups.

Table 4: Comparative analysis of the professions based on the 15 value types

Value	Profession		Mean Difference	F	Sig.
Stimulation	Architect	Engineer	0.56**	138.45	0.00
		Quantity surveyor	1.05**		0.00
	Engineer	Architect	-0.56**		0.00
		Quantity surveyor	0.49**		0.00
	Quantity surveyor	Architect	-1.05**		0.00
		Engineer	-0.49**		0.00
Self-direction	Architect	Engineer	-0.03	22.47	0.83
		Quantity surveyor	0.14		0.08
	Engineer	Architect	0.03		0.83
		Quantity surveyor	0.17		0.07
	Quantity surveyor	Architect	-0.14		0.08
		Engineer	-0.17		0.07
Hedonism	Architect	Engineer	0.18	46.21	0.06
		Quantity surveyor	0.37**		0.00
	Engineer	Architect	-0.18		0.06
		Quantity surveyor	0.19		0.06
	Quantity surveyor	Architect	-0.37**		0.00
		Engineer	-0.19		0.08
Conformity	Architect	Engineer	-0.04	25.75	0.69
		Quantity surveyor	-0.18		0.06
	Engineer	Architect	0.04		0.69
		Quantity surveyor	-0.14		0.08
	Quantity surveyor	Architect	0.18		0.06
		Engineer	0.14		0.08
Tradition	Architect	Engineer	0.05	21.32	0.56
		Quantity surveyor	-0.11		0.19
	Engineer	Architect	-0.05		0.56
		Quantity surveyor	-0.16		0.07
	Quantity surveyor	Architect	0.11		0.19
		Engineer	0.16		0.07
Security	Architect	Engineer	-0.05	72.49	0.54
		Quantity surveyor	-0.65**		0.00
	Engineer	Architect	0.05		0.54
		Quantity surveyor	-0.60**		0.00
	Quantity surveyor	Architect	0.65**		0.00
		Engineer	0.60**		0.00

Value	Profession		Mean Difference	F	Sig.
Relations	Architect	Engineer	0.48**	57.29	0.00
		Quantity surveyor	0.37**		0.00
	Engineer	Architect	-0.48**		0.00
		Quantity surveyor	-0.11		0.20
	Quantity surveyor	Architect	-0.37**		0.00
		Engineer	0.11		0.20
Universalism	Architect	Engineer	0.65**	156.99	0.00
		Quantity surveyor	1.10**		0.00
	Engineer	Architect	-0.65**		0.00
		Quantity surveyor	0.45**		0.00
	Quantity surveyor	Architect	-1.10**		0.00
		Engineer	-0.45**		0.00
Benevolence	Architect	Engineer	0.32**	40.83	0.00
		Quantity surveyor	0.18		0.06
	Engineer	Architect	-0.32**		0.00
		Quantity surveyor	-0.14		0.08
	Quantity surveyor	Architect	-0.18		0.06
		Engineer	0.14		0.08
Social-commitment	Architect	Engineer	0.19	28.79	0.06
		Quantity surveyor	0.17		0.07
	Engineer	Architect	-0.19		0.06
		Quantity surveyor	-0.02		0.95
	Quantity surveyor	Architect	-0.17		0.07
		Engineer	0.02		0.95
Goal-orientedness	Architect	Engineer	-0.84**	109.99	0.00
		Quantity surveyor	-0.70**		0.00
	Engineer	Architect	0.84**		0.00
		Quantity surveyor	0.14		0.08
	Quantity surveyor	Architect	0.70**		0.00
		Engineer	-0.14		0.08
Achievement	Architect	Engineer	-0.73**	94.53	0.00
		Quantity surveyor	-0.45**		0.00
	Engineer	Architect	0.73**		0.00
		Quantity surveyor	0.28*		0.02
	Quantity surveyor	Architect	0.45**		0.00
		Engineer	-0.28*		0.00
Materialism	Architect	Engineer	-0.43**	90.25	0.00
		Quantity surveyor	-0.70**		0.00
	Engineer	Architect	0.43**		0.00
		Quantity surveyor	-0.27*		0.03
	Quantity surveyor	Architect	0.70**		0.00
		Engineer	0.27*		0.03
Prestige	Architect	Engineer	-0.41**	85.02	0.00
		Quantity surveyor	-0.69**		0.00
	Engineer	Architect	0.41**		0.00
		Quantity surveyor	-0.28*		0.02
	Quantity surveyor	Architect	0.69**		0.00
		Engineer	0.28*		0.02
Power	Architect	Engineer	-0.98**	121.84	0.00
		Quantity surveyor	-0.83**		0.00
	Engineer	Architect	0.98**		0.00
		Quantity surveyor	0.15		0.08
	Quantity surveyor	Architect	0.83**		0.00
		Engineer	-0.15		0.08

**. The mean difference is significant at the 0.01 level.
*. The mean difference is significant at the 0.05 level.

Table 4 indicates that there were significant differences between architects and engineers in 9 value types. These conflicting value types based on mean difference (*MD*) included: power (*MD=-0.98, p<0.01*), goal-orientedness (*MD=-0.84, p<0.01*), achievement (*MD=-0.73, p<0.01*), universalism (*MD=0.65, p<0.01*), stimulation (*MD=0.56, p<0.01*), relations (*MD=0.48, p<0.01*), materialism (*MD=-0.43, p<0.01*), prestige (*MD=-0.41, p<0.01*), and benevolence (*MD=0.32, p<0.01*). Conversely, there are good fits between architects and engineers in 6 value types of: self-direction (*MD=-0.03, p=0.83*), conformity (*MD=-0.04, p=0.69*), tradition (*MD=-0.05, p=0.56*), security (*MD=0.05, p=0.54*), hedonism (*MD=0.18, p=0.06*), and social-commitment (*MD=0.19, p=0.06*).

The comparative analysis of architects and quantity surveyors demonstrated that there were significant differences between them in 10 value types of: universalism (*MD=1.10, p<0.01*), stimulation (*MD=1.05, p<0.01*), power (*MD=-0.83, p<0.01*), materialism (*MD=-0.70, p<0.01*), goal-orientedness (*MD=-0.70, p<0.01*), prestige (*MD=-0.69, p<0.01*), security (*MD=-0.65, p<0.01*), achievement (*MD=-0.45, p<0.01*), hedonism (*MD=0.37, p<0.01*), and relations (*MD=0.37, p<0.01*). In contrast, there were appropriate fits between architects and quantity surveyors in 5 value types of: tradition (*MD=-0.11, p=0.19*), self-direction (*MD=0.14, p=0.08*), social-commitment (*MD=0.17, p=0.07*), conformity (*MD=-0.18, p=0.06*), and benevolence (*MD=0.18, p=0.06*).

The comparative analysis of engineers and quantity surveyors indicated that there were significant differences between them in 6 value types of: security (*MD=-0.60, p<0.01*), stimulation (*MD=0.49, p<0.01*), universalism (*MD=0.45, p<0.01*), prestige (*MD=0.28, p<0.05*), achievement (*MD=0.28, p<0.05*), and materialism (*MD=-0.27, p<0.05*). Conversely, there were good fits between engineers and quantity surveyors in 9 value types of: social-commitment (*MD=-0.02, p=0.95*), relations (*MD=-0.11, p=0.20*), benevolence (*MD=-0.14, p=0.08*), goal-orientedness (*MD=0.14, p=0.08*), conformity (*MD=-0.14, p=0.08*), power (*MD=0.15, p=0.08*), tradition (*MD=-0.16, p=0.07*), self-direction (*MD=0.17, p=0.07*), and hedonism (*MD=0.19, p=0.06*).

Conclusively, the conflicts between architects and quantity surveyors from the perspectives of quantity (in 10 value types) and level of significance, were shown to be more numerous and deeper than the conflicts between architects and engineers (in 9 value types) and also the conflicts between engineers and quantity surveyors (in 6 value types). Better expressed, the best value fit was observed in the pair of engineers-quantity surveyors (in 9 value types), then the pair of architects-engineers (in 6 value types), and finally the pair of architects-quantity surveyors (in 5 value types). Figure 2 depicts these comparisons.

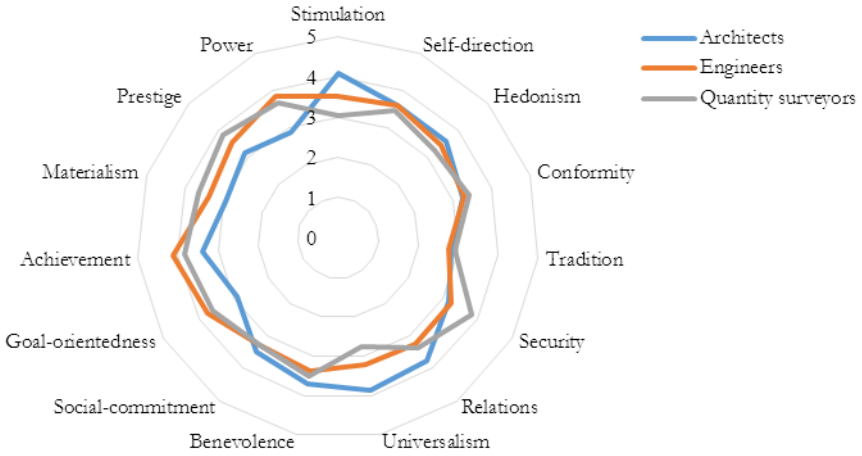

Figure 2: Comparing the professions based on the 15 value types

To provide better understanding of the value priorities and potential conflicts between the three groups of architects, engineers and quantity surveyors, the 15 value types were categorized into the 4 higher-order values. Table 5 displays the descriptive statistics of the professional groups based on the 4 higher-order values.

Table 5: Descriptive statistics of the 4 higher-order value types

Value	Profession	N	Mean	Std. Dev.
Openness to change	Architect	152	3.82	0.69
	Engineer	168	3.56	0.60
	Quantity surveyor	80	3.28	0.65
	Total	400	3.59	0.77
Conservation	Architect	152	3.13	0.72
	Engineer	168	3.15	0.74
	Quantity surveyor	80	3.45	0.66
	Total	400	3.27	0.83
Self-transcendence	Architect	152	3.73	0.64
	Engineer	168	3.34	0.68
	Quantity surveyor	80	3.29	0.73
	Total	400	3.49	0.78
Self-enhancement	Architect	152	3.09	0.71
	Engineer	168	3.78	0.68
	Quantity surveyor	80	3.75	0.69
	Total	400	3.62	0.79

Table 5 specifies that the priority of the 4 higher-order values for architects included: openness to change (3.82), self-transcendence (3.73), conservation (3.13), and self-enhancement (3.09). The value priority for engineers includes: self-enhancement (3.78), openness to change (3.56), self-transcendence (3.34), and conservation (3.15). Finally, the priority of values for quantity surveyors included: self-enhancement (3.75), conservation (3.45), self-transcendence (3.29), and openness to change (3.28). In order to find the differences between the mean scores, ANOVA was performed by Post-Hoc using Tukey test (see Table 6).

Table 6 indicates that there were significant differences between architects and engineers in 3 higher-order value types of: self-enhancement (*MD=-0.69, p<0.01*), self-transcendence (*MD=0.39, p<0.01*), and openness to change (*MD=0.26, p<0.05*). In contrast, there was an adequate fit between architects and engineers in conservation (*MD=-0.02, p=0.92*).

As expected, the pair which showed the most numerous and deepest conflicts was architects-quantity surveyors. Indeed, there were significant differences in the entire higher-order value types. These conflicting values included: self-enhancement (*MD=-0.66, p<0.01*), openness to change (*MD=0.54, p<0.01*), self-transcendence (*MD=0.44, p<0.01*), and conservation (*MD=-0.32, p<0.01*).

The pair of engineers-quantity surveyors indicated significant differences in 2 higher-order value types of conservation (*MD=-0.30, p<0.01*), and openness to change (*MD=0.28, p<0.05*). In contrast, there were good fits in 2 higher-order value types of self-enhancement (*MD=0.03, p=0.73*), and self-transcendence (*MD=0.05, p=0.41*).

Accordingly, the conflicts between architects and quantity surveyors from the perspectives of quantity (in 4 higher-order value types) and level of significance, were more numerous and stronger than the conflicts between architects and engineers (in 3 higher-order value types), and also the conflicts between engineers and quantity surveyors (in 2 higher-order value types). In better expression, the best value fit existed in the pair of engineers-quantity surveyors (in 2 higher-order value types), then the pair of architects-engineers (in 1 higher-order value type) and lastly, the pair of architects-quantity surveyors which had no higher-order value type in fit. Figure 3 displays these comparisons.

Table 6: Comparative analysis of the professions based on the 4 higher-order value types

Value	Profession		Mean Difference	F	Sig.
Openness to change	Architect	Engineer	0.26*	96.05	0.03
		Quantity surveyor	0.54**		0.00
	Engineer	Architect	-0.26*		0.03
		Quantity surveyor	0.28*		0.02
	Quantity surveyor	Architect	-0.54**		0.00
		Engineer	-0.28*		0.02
Conservation	Architect	Engineer	-0.02	48.35	0.92
		Quantity surveyor	-0.32**		0.00
	Engineer	Architect	0.02		0.92
		Quantity surveyor	-0.30**		0.00
	Quantity surveyor	Architect	0.32**		0.00
		Engineer	0.30**		0.00
Self-transcendence	Architect	Engineer	0.39**	67.36	0.00
		Quantity surveyor	0.44**		0.00
	Engineer	Architect	-0.39**		0.00
		Quantity surveyor	0.05		0.41
	Quantity surveyor	Architect	-0.44**		0.00
		Engineer	-0.05		0.41
Self-enhancement	Architect	Engineer	-0.69**	121.65	0.00
		Quantity surveyor	-0.66**		0.00
	Engineer	Architect	0.69**		0.00
		Quantity surveyor	0.03		0.73
	Quantity surveyor	Architect	0.66**		0.00
		Engineer	-0.03		0.73

**. The mean difference is significant at the 0.01 level.
*. The mean difference is significant at the 0.05 level.

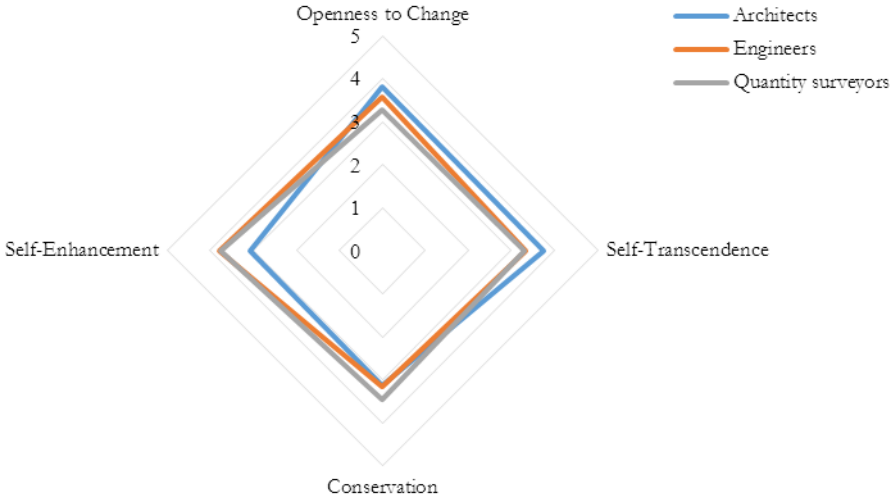

Figure 3: Comparing the professions based on the 4 higher-order value types

The results generated by the assessment of personal values regarding the 4 higher-order value types support the findings obtained from the analysis related to the 15 value types. This was a sufficient reason for accepting the structure of the study model.

Discussion

This research assessed personal values of the construction project consultants identified as architects, engineers, and quantity surveyors. The aim of this assessment was to specify the value priorities of each groups and the potential conflict between them. In general, the results generated by the analysis demonstrated that there were significant personal value differences between these groups of the construction project consultants.

The assessment of architects' personal values revealed that they were people who upheld openness to change and self-transcendence values. In a broad sense, architects considered values like stimulation (i.e. risk-taking and innovation), universalism (i.e. protecting the environment and aesthetics), relations (i.e. teamwork and friendship), benevolence (i.e. loyalty and helpful), hedonism (i.e. enjoying work and pleasure), and self-direction (i.e. creativity, independence, and flexibility), more important than values such as prestige, materialism, goal-orientedness, power, and tradition. The previous research on architects' personal values confirmed these findings through demonstrating their orientation to values like creativity, innovation, flexibility, relationships, excitement and aesthetics (Bond et al., 2004; Nelson and Shavitt, 2002; Svee, 2014). Therefore, based on the values highly supported by architects, they could be described as people who seek excitement, novelty, and challenge in their work life. They uphold aesthetics, and protection of nature and beauty were important to them. Having good inter-personal relations with others, true friendships were noteworthy for them. They cared about preservation and enhancement of the welfare of others. They wanted to enjoy their work and have a flexible job with time freedom.

On the other hand, engineers upheld self-enhancement and openness to change values. In better expression, engineers highly supported values like achievement (i.e. successful and competence), power (i.e. influential and make decision), goal-orientedness (i.e. competition and perseverance), self-direction (i.e. independence, creativity, and flexibility), and prestige (i.e. being admired and recognition), more than values like social-commitment, conformity, relations, security, universalism, and tradition. The findings were supported by the previous research where engineers gravitated to openness to change (i.e. stimulation and self-direction) and self-enhancement (i.e. achievement and goal-orientedness) value types (Munson and Posner, 1979; Wnek and Williamson, 2010; Koth, 2011; Daniela et al., 2013). Accordingly, engineers could be described by their values' priority as looking for personal success through demonstrating their competence. Control over others meant something for them. The research showed they work to fulfil a purpose; they strive and do not give up. They cared about independent thought and action-choosing, creating, and exploring. They wanted to be admired and recognized.

The assessment of quantity surveyors personal values revealed that they were more supportive of self-enhancement and conservation values. These supports could be observed in values like achievement (i.e. advancement, successful, professional growth, and excellence), prestige (i.e. preserving my public image and recognition), security (i.e. financial security, thrift, and personal security), power (i.e. influential, make decision, and leadership), and materialism (i.e. financial reward) whereas they were less supportive of values such as hedonism, stimulation, tradition, and universalism. These findings were in line with the findings of previous research where the authors found efficiency, financial security, decision making and providence as the values more supported by quantity surveyors (Fan, Ho and Ng, 2001; Alfred, 2007; Bowen et al., 2007). Therefore, quantity surveyors could be defined through their values as those who care about advancement and professional growth. They want to be successful and excellent. They try to protect their public image. Safety, harmony, and stability of work, of relationships, and of self were important to them. Being influential and making decisions were the values they uphold. Based on their opinion, money and financial rewards were the important factors that must be

considered throughout working life. Figure 4 displays the orientation of each professional group of respondents to the four higher-order values and the conflicts among them in an outline.

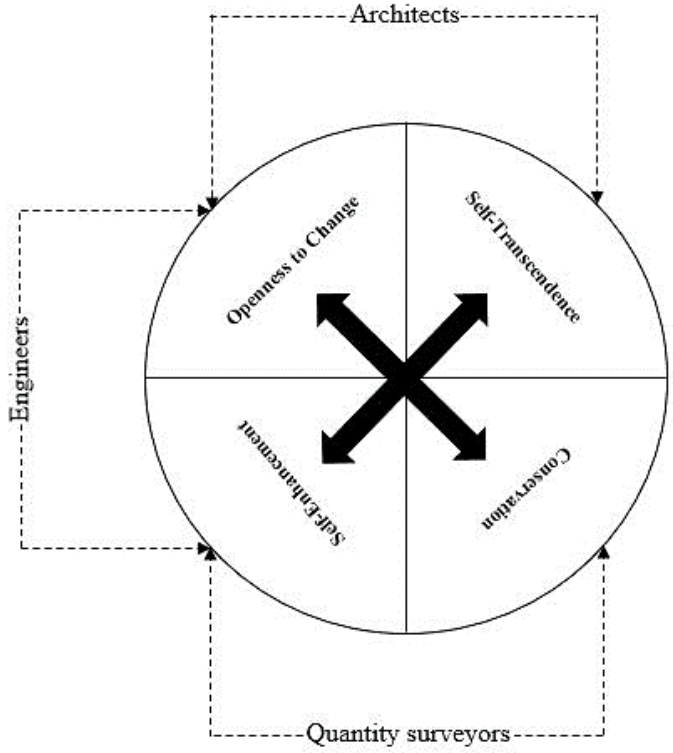

Figure 4: The perceived trends of professions regarding the 4 higher-order value types

The comparative analysis of personal values related to the three groups of architects, engineers, and quantity surveyors revealed that architects had the most significant conflicts with the other groups. Indeed, architects had the strongest and deepest conflicts with quantity surveyors. The most significant conflict between them existed in the dimension of self-enhancement versus self-transcendence. These conflicts were reflected in universalism and relations which were supported by architects more than quantity surveyors, and power, materialism, goal-orientedness, prestige and achievement which were upheld by quantity surveyors more than architects. There were also significant conflicts between them in the dimension of openness to change versus conservation. In this dimension, stimulation and hedonism were more significantly supported by architects whereas security was more supported by quantity surveyors. Furthermore, the comparative analysis demonstrated that there were appropriate fits between architects and quantity surveyors in the value types of: tradition, self-direction, social-commitment, conformity, and benevolence.

Although the comparison of personal values related to the pair of architects-quantity surveyors demonstrated the most significant differences (profound conflicts), the pair of architects-engineers also showed significant conflicts which mostly reflected in the dimension of self-enhancement versus self-transcendence. Indeed architects more significantly supported universalism, stimulation, relations, and benevolence than engineers. In contrast, engineers more upheld power, goal-orientedness, achievement, materialism, and prestige. The comparative analysis indicated adequate fits between architects and engineers in self-direction, conformity, tradition, security, hedonism, and social-commitment which affirmed existing better fit between these professional groups in the dimension of openness to change versus conservation.

Unlike architects who showed significant differences with engineers and quantity surveyors in the personal values, the pair of engineers-quantity surveyors indicated better fit. In detail, there were adequate fits between them in social-commitment, relations, benevolence, goal-orientedness, conformity, power, tradition, self-direction, and hedonism. Conversely the comparative analysis revealed that there are significant differences between engineers and quantity surveyors in security, stimulation, universalism, prestige, achievement, and materialism.

Accordingly, the assessment of architects, engineers, and quantity surveyors' personal values in order to identify their value priorities and to find the potential value conflict between them revealed that architects were significantly different compared to engineers and quantity surveyors, who showed relatively adequate fit. It means, conflict between architects with engineers and quantity surveyors specifically, can be expected during the brainstorming and decision making process at work, whereas more compatibility between engineers and quantity surveyors is predictable.

Conclusively, the assessment of personal values of the three groups of professional construction stakeholders implies that there were similarity and compatibility between their personal values and the content of their relative professions. As the characteristics of engineering demand values like innovation, efficiency, developing abilities, carefulness, being intellectual, being professional, and high quality (Koth, 2011), the professional engineers prioritized these value types in their work life and these are reflected in openness to change and self-enhancement. On the other hand, as architecture needs creativity, aesthetics, knowledge, and excitement (Bond et al., 2004), the personal values of architects uphold these values through emphasizing openness to change and self-transcendence values. This condition also holds true for quantity surveyors and their profession. As quantity surveying demands qualifications such as cost planning, wise decisions, over-controlling, efficiency, providence, and carefulness (Alfred, 2007), the professional quantity surveyors also prioritized these values through upholding self-enhancement and conservation values. Therefore, the value conflicts between architects, engineers, and quantity surveyors can be inferred as the conflicting content of their professions.

Conclusion

The particular interest of this study was to assess personal values based on different professions. In better expression, this research assessed the role of demographic variable of "profession" in explaining personal values whereas there was a lack of knowledge in the general literature and in the context of the construction industry as well. Therefore in this study, three professional groups of Malaysian construction consultants; architects, engineers, and quantity surveyors, were considered as the professional construction stakeholders. The main purpose for investigating the personal values of these groups was to provide a framework of their value priorities for better understanding their various attitudes, preferences, and behaviours and to also find the potential value conflicts between them.

The research findings demonstrated that each group of professional stakeholders showed different patterns of personal values and there were significant conflicts between them. In detail, architects had the most significantly different profile of personal values compared to the other groups, indicating significant value conflicts with them. Indeed, the deepest conflicts were found between architects and quantity surveyors, while the best fits existed between engineers and quantity surveyors. The findings confirmed the predictor role of "profession" variable in explaining differences in personal values. It means different job experiences influence workers to have specific personal values that fit with the content of their professions. Moreover, people might tend to choose a particular profession in order to achieve their own personal values. Accordingly, as personal values might differ in consideration of age, gender, culture etc. it can be different based on "profession" as well.

This research identified the value priorities and potential value conflicts between architects, engineers, and quantity surveyors in the Malaysian construction industry. This assessment could help project managers to decide how they can reduce or manage the conflicts and take specific actions to accomplish this. These actions can be considered in socialization programs such as holding briefings, increasing communication, and using adequate style of conflict management (integrating, obliging, dominating, avoiding, and compromising) to reach better compatibility between the construction stakeholders. In a broad sense, value-based management can be considered as a new paradigm in construction project management which: provides better understanding of stakeholders, their behaviors, needs, expectations, and preferences; identifies potential conflicts between stakeholders; assists project managers to implement more effective stakeholder management and to select an adequate style of conflict management. Therefore, it can be highly recommended to project managers to embrace value-based management as a new managerial approach in construction projects.

References

Ahmad, K.Z., 2010. Work Value Congruence and Satisfaction at Work: Is this Western Concept Applicable to a Developing Country such as Malaysia? *Asian Journal of Business and Accounting*, 1(1), pp.18-32.

Alfred, O.O., 2007. Conflict of Interest within Construction Practitioners: Quantity Surveying, Case Study. *Surveying and Built Environment*, 18(1), pp.35-50.

Bond, M.H., Leung, K., Au. A., Tong, K.K. and Chemonges-Nielson, Z., 2004. Combining social axioms with values in predicting social behaviours. *European Journal of Personality*, 18(3), pp.177-91. doi: http://dx.doi.org/10.1002/per.509

Bowen, P., Akintoye, A., Pearl, R. and Edwards, P.J., 2007. Ethical behaviour in the South African construction industry. *Construction Management and Economics*, 25(6), pp.631-48. doi: http://dx.doi.org/10.1080/01446190701225707

Brockman, J.L., 2012. *The Cost of Interpersonal Conflict in Construction*. PhD. Michigan State University, Michigan.

Cakmak, E. and Cakmak, P.I., 2014. An Analysis of Causes of Disputes in the Construction Industry Using Analytical Network Process. *Procedia-Social and Behavioral Sciences*, 109, pp.183-87. doi: http://dx.doi.org/10.1016/j.sbspro.2013.12.441

Ceja, L. and Tàpies, J., 2011. *Corporate Values Guiding the World's Largest Family-Owned Businesses: A Comparison with Non-Family Firms* (No. D/916). IESE Business School.

Chang, J.Y., Choi, J.N., and Kim, M.U., 2008. Turnover of Highly Educated R&D Professionals: The Role of Pre-Entry Cognitive Style, Work Values and Career Orientation. *Journal of Occupational and Organizational Psychology*, 81(2), pp.299-317. doi: http://dx.doi.org/10.1348/096317907X204453

Cooman, R., Dieter, S., Pepermans, R., Bois, C., Caers, R. and Jegers, M., 2008. Freshmen in Nursing: Job Motives and Work Values of a New Generation. *Journal of Nursing Management*, 16(1), pp.56-64. doi: http://dx.doi.org/10.1111/j.1365-2934.2007.00800.x

Daniela, P., Marius, B., Andreea-Ramona, L. and Oana-Alina, B., 2013. Personal Values and the Professional or Academic Performance in the Engineering Professions. *Procedia-Social and Behavioral Sciences*, 83, pp.743-47. doi: http://dx.doi.org/10.1016/j.sbspro.2013.06.140

De Clercq, S., 2007. *Extending the Schwartz Value Theory for Assessing Supplementary Person-Organization Fit*. PhD. Ghent University, Ghent.

De Vaus, D., 2013. *Surveys in social research*. London: Routledge.

Dinger, M., Thatcher, J. B. and Stepina, L.P., 2010. A study of Work-Family Conflict among IT Professionals: Job Characteristics, Individual Values, And Management Practices. *Journal of Organizational Computing and Electronic Commerce*, 20(1), pp.91-121. doi: http://dx.doi.org/10.1080/10919390903482341

Fan, L., Ho, C. and Ng, V., 2001. A study of quantity surveyors' ethical behaviour. *Construction Management and Economics*, 19(1), pp.19-36. doi: http://dx.doi.org/10.1080/014461901452058

Femi, O.T., 2014. Causes and Effects of Conflict in the Nigerian Construction Industry. *International Journal of Technology Enhancements and Emerging Engineering Research*, 2(6), pp.7-16.

Gardezi, S.S.S., Shafiq, N. and Khamidi, M.F.B., 2013. Prospects of Building Information Modelling (BIM) in Malaysian Construction Industry as Conflict Resolution Tools. *Journal of Energy Technologies and Policies*, 3(11), pp.346-50.

Gibson, E.P. and Schwartz, S.H., 1998. Value Priorities and Gender. *Social Psychology Quarterly,* 6191), pp.49-67.

Hagstrom, T. and Kjellberg, A., 2007. Stability and Change in Work Values among Male and Female Nurses and Engineers. *Scandinavian Journal of Psychology*, 48(2), pp.143-51. doi: http://dx.doi.org/10.1111/j.1467-9450.2007.00576.x

Hegney, D., Plank, A. and Parker, V., 2006. Extrinsic and Intrinsic Work Values: Their Impact on Job Satisfaction in Nursing. *Journal of Nursing Management*, 14(4), pp.272-81. doi: http://dx.doi.org/10.1111/j.1365-2934.2006.00618.x

Hofstede, G., 1980. *Culture's Consequences: International Differences in Work- related Values*. Beverly Hills, CA: Sage.

Jaffar, N., Tharim, A.A. and Shuib, M.N., 2011. Factors of Conflict in Construction Industry: A Literature Review. *Procedia Engineering*, 20, pp.193-202. doi: http://dx.doi.org/10.1016/j.proeng.2011.11.142 and doi: http://dx.doi.org/10.1016/j.proeng.2011.11.156

Koth, B., 2011. Personal values and the ecological worldview of civil engineering and environmental science students. In: *Proceedings of the 22nd Annual Conference for the Australasian Association for Engineering Education*. Fremantle, Australia, 5-7 December 2011.

Leung, M.Y. and Liu, A.M., 2003. Analysis of Value and Project Goal Specificity in Value Management. *Construction Management and Economics*, 21(1), pp.11-19. doi: http://dx.doi.org/10.1080/0144619032000065081

Leung, M.Y., Yu, J. and Liang, Q., 2013. Analysis of the Relationships between Value Management Techniques, Conflict Management, and Workshop Satisfaction of Construction Participants. *Journal of Management in Engineering*, 30(3), pp.24-38.

Li, W., Liu, X. and Wan, W., 2008. Demographic Effects of Work Values and Their Management Implications. *Journal of Business Ethics*, 81(4), pp.875-85. doi: http://dx.doi.org/10.1007/s10551-007-9554-6

Loosemore, M., Nguyen, B.T. and Denis, N., 2000. An Investigation into the Merits of Encouraging Conflict in the Construction Industry. *Construction Management and Economics*, 18(4), pp.447-56. doi: http://dx.doi.org/10.1080/01446190050024860

Maksimainen, J., 2012. Content-Based Approach in Exploring the Cognitive Structure of Values. *Asian Social Sciences*, 8 (6), pp.26-35. doi: http://dx.doi.org/10.5539/ass.v8n6p26

Mitkus, S. and Mitkus, T., 2014. Causes of Conflicts in a Construction Industry: A Communicational Approach. *Procedia-Social and Behavioural Sciences*, 110, pp.777-86. doi: http://dx.doi.org/10.1016/j.sbspro.2013.12.922

Munson, J.M. and Posner, B.Z., 1979. The values of engineers and managing engineers. *Engineering Management, IEEE Transactions on*, EM-26(4), pp.94-100.

Nelson, M.R. and Shavitt, S., 2002. Horizontal and vertical individualism and achievement values: a multimethod examination of Denmark and the United States. *Journal of Cross-Cultural Psychology*, 33(5), pp.439-58. doi: http://dx.doi.org/10.1177/0022022102033005001

Pruzan, P., 1998. From Control to Values-Based Management and Accountability. *Journal of Business Ethics*, 17(13), pp.1379-94. doi: http://dx.doi.org/10.1023/A:1006079110633

Rahim, M.A., 2015. *Managing Conflict in Organizations*. New Jersey: Transaction Publishers.

Rokeach, M., 1973. *The Nature of Human Values*. New York: The Free Press.

Rounds, J.B., Dawis, R.V. and Lofquist, L.H., 1987. Measurement of Person-Environment Fit and Prediction of Satisfaction in the Theory of Work Adjustment. *Journal of Vocational Behavior*, 31, pp.297-318. doi: http://dx.doi.org/10.1016/0001-8791(87)90045-5

Schwartz, S.H., 1992. Universals in the Content and Structure of Values: Theoretical Advances and Empirical Tests in 20 Countries. In: M. Zanna, ed. *Advances in Experimental Social Psychology*. Orlando, EL: Academic Press. Pp. 1-65.

Schwartz, S.H., 1999. A Theory of Cultural Values and Some Implications for Work. *Applied Psychology: An Introductional Review*, 48(1), pp.23-47. doi: http://dx.doi.org/10.1111/j.1464-0597.1999.tb00047.x

Schwartz, S.H., 2012. An Overview of the Schwartz Theory of Basic Values. *Online Readings in Psychology and Culture*, 2(1), pp.1-20. doi: http://dx.doi.org/10.9707/2307-0919.1116

Schwartz, S.H. and Boehnke, K., 2004. Evaluating the structure of Human Values with Confirmatory Factor Analysis. *Journal of Research in Personality*, 38(3), pp.230-55. doi: http://dx.doi.org/10.1016/S0092-6566(03)00069-2

Senaratne, S. and Udawatta, N., 2013. Managing Intragroup Conflicts in Construction Project Teams: Case Studies in Sri Lanka. *Architectural Engineering and Design Management*, 9(3), pp.158-75. doi: http://dx.doi.org/10.1080/17452007.2012.738041

Super, D.E., 1973. The Work Values Inventory. In: D.G. Zytowski, ed. *Contemporary Approaches to Interest Measurement*. Minneapolis, MN: University of Minnesota Press. Pp.189-205.

Svee, E.O., 2014. Explorations in Values Awareness: Elicitation of Consumer Preferences for Information Systems Development. *Eric-Oluf Svee DSV Report,* Series No: 14-011.

Sverdlik, N., 2012. The Content of Internal Conflicts: A Personal Values Perspective. *European Journal of Personality*, 26(1), pp.30-44. doi: http://dx.doi.org/10.1002/per.814

Tashi, S. and Peansupap, V., 2013. Review of Conflict Issues of Public Construction Projects in Bhutan. In: *18th National Convention on Civil Engineering*. Chang Mai, Thailand, 8-10 May 2013. Thailand: Chiang Mai University.

Thompson, L., 1998. *The Mind and Heart of the Negotiator*. Upper Saddle River, NJ: Prentice-Hall.

Thomson, D.S. and Austin, S.A., 2006. Using VALiD to understand value from the stakeholder perspective. In: *Proceedings of 46th SAVE International Annual Conference*. Savannah, Georgia, 4-7 June 2006. SAVE International.

Ueda, Y. and Ohzono, Y., 2013. Differences in Work Values by Gender, Marital Status, and Generation: An Analysis of Data Collected from "Working Persons Survey, 2010". *International Journal of Human Resource Studies*, 3(2), pp.28-36.

Wnek, G.E. and Williamson, S., 2010. Engineering value propositions: Professional and Personal Needs. In: D. Grasso and M.B. Burkins, eds. *Holistic Engineering Education: Beyond Technology*. New York: Springer. Ch.12, pp.137-44. doi: http://dx.doi.org/10.1007/978-1-4419-1393-7_12