Embeddedness of codes of ethics in construction organizations

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Abstract

Purpose – The existence of codes of ethics in most organizations does not seem to have reduced unethical behaviour especially in the construction organizations due to lack of effective ethics management such as embeddedness of ethical codes. The purpose of this paper is to bridge the current knowledge gap by highlighting the principal factors determining the embeddedness of codes of ethics in construction organizations.

Design/methodology/approach – Questionnaires detailing 30 factors determining ethical code embeddedness were sent to professionals in construction organizations in Hong Kong. In total, 160 valid responses were analysed by mean score and exploratory factor analysis.

Findings – Based on the mean score, "protecting anyone who exposes alleged wrongdoing", "managers acting as role models" and "giving code standards with explanation to new employees" are the three factors that ranked highest. From the results of factor analysis, six factors were extracted, including; process of code internalization, identification and remover of barriers, process of enacting value, process of accountability, process of coding and process of monitoring. These are processes that enable proper integration of codes of ethics within construction organization.

Research limitations/implications – While this study has provided useful information regarding ethical codes, the limitation is inherent in the population of the study in that, percentage representation of construction organizations in Hong Kong could not be presented. This was due to the sensitivity of ethics as perceived by construction practitioners. The authors, at the initial stage, sent invitation letters to several organizations inviting them to participate in the research but they all declined. Therefore, the data collection approach discussed earlier was adopted and the questionnaire was made strictly anonymous which made it difficult to classify organizations that are represented. Nevertheless, it is hoped that this paper will engineer a change in research direction and open up new discussion channels.

Originality/value – The results presented in this study provide sufficient evidence and useful pointers to clarify some misconceptions about factors determining code embeddedness. These findings help to clarify what the high-prioritized factors are, and could also be used as an assessment tool to evaluate performance of an organization regarding codes of ethics and thus help to identify areas requiring improvement.

Keywords Hong Kong, Ethics, Factor analysis, Organizations, Construction, Embeddedness

Paper type Research paper

Introduction

Codes of ethics are documents which state the major behavioural principles and articulate the values embraced by an organization (Stevens, 2009). Codes of ethics have become common tool in today's business world (Webley and Werner, 2008). As a part of company ethics management policy, studies show that codes of ethics exist in several organizations. For example, 78 and 85 per cent of the top 1,000 US and Canada companies, respectively as well as industry and professional associations have written documents labelled as codes of ethics or codes of conduct (Nijhof *et al.*, 2003). Again, 38 per cent of the top 100 organizations in the Netherlands have drawn up a code of

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conduct. Similarly, 65 per cent of the top 500 organizations in Spain (Mele *et al.*, 2000) and 50 per cent of the largest companies in Australia have adopted a code (Nijhof *et al.*, 2003). In Hong Kong, code of ethics is a requirement for any contractors to bid for government works (Ho *et al.*, 2004). Thus code of ethics is not peculiar to any nation or industry in particular rather, it can be regarded as a universal management tool mainly used by both private and public organizations.

Some follow-up researches show certain development in organizational codes of ethics in some of the aforementioned countries. For instance, in USA, corporations are required to comply with the Foreign Corrupt Practices Act by establishing and monitoring a written Code of Ethics (Stohl *et al.*, 2009). Singh (2011) affirms the effectiveness of codes of ethics in large corporations in Canada. Rodríguez-Domínguez *et al.* (2009), stress that the drawing up of codes in many organizations in Spain is still at the initial stage. Svensson *et al.* (2009) explore corporate codes of ethics in Australia, Canada and Sweden and conclude that the three countries share similar constructs in terms of code implementation. However, the evidence of corporate code existence in most organizations does not seem to have reflected in curbing unethical behaviour especially in the construction industry. Reported cases of ethical scandal from time immemorial up to the present appear to have named the industry a bad apple. Some of these ethical deviances as observed by previous researches (e.g. Ray *et al.*, 1999; Zarkada-Fraser and Skitmore, 2000; May *et al.*, 2001; Vee and Skitmore, 2003; Fan *et al.*, 2001; Liu *et al.*, 2004; Glass and Simmonds, 2007; Bowen *et al.*, 2007; Suen *et al.*, 2007) include; compromise of quality for cost, ring formation, various games, lying and fraudulent acts.

In the context of construction organization, a number of researchers have studied the issue of ethics management. Vee and Skitmore (2003) reveal that the demand for a formidable ethical practice is still on the increase and that for any advancement in the construction industry to take place; ethical issues must be addressed by proper implementation and policing of ethical guidelines. Similarly, Poon (2004) also emphasizes the importance of ethics for the construction industry owing to its peculiar nature and characteristics. Ho (2010) also called for an approach for a total embeddedness of codes in daily activities of construction organizations. Despite the effectiveness of codes of ethics and the call for implementation approach in construction organizations, there is still paucity of research in this direction. The authors at this point, argue that one of the most significant ways in which the benefits of codes of ethics can further evolve is to concentrate on the mundane, yet important, act of embedding ethical codes within construction organizations. It is important that activities regarding code embeddedness follow a recognized process so as to reinforce its importance and to focus the attention of management and employees on the purpose of developing the code. Therefore, this paper aims to identify and classify the factors that enable embeddedness of ethical codes in the web of construction organization process. The paper presents a more scholarly and practical approach to ethics assessment in construction organizations in a way that ethical code integration can be better comprehended. It is hoped that this paper will engineer a change in research direction and open up new discussion channels. It will also serve as guide for construction practitioners concerning ethics management in their respective organizations.

Literature review

Strategic planning often embraced for sustainable development (including ethics management) in construction industry is primarily confined to the organizational level (Betts and Ofori, 1992; Flanagan *et al.*, 2007; Ho, 2013; Ho *et al.*, 2004; Oladinrin and

Ho, 2014). This may be as a result of immediate effect of any economic changes on construction organizations. For instance, after the Asian economic downturn in late 1997, Chan *et al.* (2005) observe that some of the contractor organizations may fail to survive and sustain their business. Parkin (2000) posits that the entire life-cycle performance of a construction project can be influenced by ethical practice embraced by the organizations involved in such project. In essence, this study focuses on implementation of codes of ethics at the organization level of construction. A construction company is defined as a group of people coming together to share specialized knowledge for the purpose of executing and completing a construction project through the process of design, estimating, bidding and procurement with the aim of making profit (Tenah, 1986).

Consequently, with the increase in unethical behaviour in the industry, contractors have always been at the centre of any blames resulting from any construction anomalies (Adnan *et al.*, 2012). Thus, this study focuses on main contractors (registered construction companies) as business organizations. Since it became mandatory for all corporate companies to adopt codes of ethics so as to cultivate an ethical ethos both at the individual and organizational levels, many organizations in Hong Kong have adopted ethical codes (Snell *et al.*, 1999) and construction companies are not exempted (Ho *et al.*, 2004). According to Snell *et al.* (1999), the contents of the adopted codes of ethics by most companies reflect core ethics requirements, which is different from specific codes of conduct for guiding behaviour of individual professional.

The major concerns of business managers are profit making, maximizing economic opportunities and practicing total entrepreneurship; these are done at the expense of ethical practice (Suen *et al.*, 2007). This observation is a common trend in construction organizations that is characterize with enormous pressure to make quick money. The fact that business owners are less concerned about ethics does not rule out the inherent consequences of being unethical. Suen *et al.* (2007) in their study on managing ethical behaviour in construction organizations therefore argue for the necessity of ethics, claiming that it allows people to rightly position themselves within the web of interrelationships when faced with issues of reality.

Construction activities in one way or another, affect every individual; therefore, it is dangerous to ignore the behaviour of its participants. The reports of ethical malpractices among constructors are alarming. These include corruption, defective works enveloped with poor workmanship and overcharge which have drawn undesirable attention to the issue of ethics in the industry. For example, there was a case of counterfeit locks supplied by unqualified supplier worth HK$16.8 million (ICAC, 2003). Similarly, survey conducted in the USA regarding ethical practices in construction revealed that only a few companies feel concerned about ethical issues (FMI and CMAA, 2004). Also in Australia, as reported by Cole (2003), corruption intimidation and unlawfulness has been the common occurrence in the construction industry. All these scenarios call for a sound ethics management. Sims (1992) posited that attaining effective management of ethical behaviour demands that organizations ensure both their managers and employees have the knowledge of dealing with ethical issues in their daily routines. Suen *et al.* (2007) also posits that understanding ethics and managing ethical behaviour is a critical social problem for managers especially in the construction organization.

Another factor that necessitates development of codes of ethics in the construction organization include language barrier especially during international projects. In order to share relative common language, coherent codes of ethics will be required (Suen *et al.*, 2007).

In the same vein, globalization in construction as well as temporary nature of organization settings laid a demand on construction companies to establish an ethics management structure. Although the structure cannot be formalized in general terms due to imminent value conflicts, it will help them in managing the pressure of meeting the international ethical standard at same time, coordinating the conflicting goals of project members among others. Tow and Loosemore (2009) reveal that the concerns regarding ethical performance of construction industry is becoming more significant. Thus, this necessitates the need to concentrate on addressing ethical issue, by assessing the factors that enable embeddedness of codes of ethics in construction organizations.

According to Lindfelt and Törnroos (2006), ethical code embeddedness in an organization is defined as the relation the firm has to ethical issues in the business environment to ensure responsible behaviour. In order words, embeddedness is an act of incorporating ethics factors that allow for proper integration of ethical codes within the web of an organization. Due to limited literature regarding code embeddedness in construction management studies, extensive literature review was conducted within general ethics studies. The essence of this is to establish relevant factors from theory and the result of the literature search is presented in Table I. These factors represent the indicators for ethical code embeddedness in construction organizations.

Having identified factors supporting codes of ethics embeddedness, the next task is to describe the processes of utilizing the factors by properly integrating them into the web of an organization. In a similar research, Nijhof *et al.* (2003) distinguish six processes for actualizing responsible behaviour within an organization named: processes of "responsibilization". The processes include: the process of identifying and removing barriers; the process of coding; the process of internalization; the process of enacting values; the process of monitoring; and the process of accountability. The current study maintains Nijhof *et al.* (2003) development although, it utilizes the factors extracted from literature.

Methodology

Survey

To achieve the aim of this study, information gathered via a questionnaire survey covering the main attributes of ethics management was empirically tested. In preparing the questionnaire, a review of ethics management literature was undertaken. In addition, Nijhof *et al.*'s (2003) study formed another basis for the empirical study. For the purpose of brevity of this paper, interested reader should consult Nijhof *et al.* (2003) for further reading. A list of 30 factors derived from the literature that are potentially influencing code embeddedness are represented by statements and all the statements are in turn rated on a five-point Likert-type scale with points 1 and 5 representing strongly disagree and strongly agree, respectively. Other parts of the questionnaire are designed to gather demographical information about the respondents. However, due to space limitation, only analysis of factors pertaining to the ethics embeddedness is reported in this paper. The questionnaires were bilingual (English/Chinese) with the help of four research experts in translating and proof reading of the survey.

Data collection

Convenience sampling method was used in administering the questionnaire. A group of construction practitioners undertaking part-time courses in the university were targeted on one hand. On the other hand, construction practitioners who are registered

Factors	Source reference
Commitment of managing director to ethics	Schwenke (2007) and Salopek (2001)
Consistence of codes with international standard (e.g. ILO)	Mamic (2003) and Nijhof *et al.* (2003)
Protecting anyone who exposes alleged wrongdoing	Kaptein (2011) and Lloyd and Mey (2010)
Providing financial demand of codes of ethics	Schwenke (2007)
Identifying situations that encourage bad behaviour	Rampersad (2006) and Nijhof *et al.* (2003)
Managers acting as role models	Appelbaum *et al.* (2005) and Tow and Loosemore (2009)
Regular revision of codes of ethics	Schwenke (2007)
Giving code standards with explanation to new employees	Lloyd and Mey (2010) and Nijhof *et al.* (2003)
Employees ethical appraisal	Svensson *et al.* (2009) and Schwenke (2007)
Updating code contents to reflect current issues in construction practice	Sakyi and Bawole (2009)
Training about the importance of codes of ethics	Beeri *et al.* (2013) and Mamic (2003)
Strategic planning of the company emphasizing long-term importance of codes of ethics	Lloyd and Mey (2010) and Schwenke (2007)
Communicating codes with employees	Ho (2013) and Adam (2005)
Regular meeting by supervisors to stimulate acting in accordance with codes	Nijhof *et al.* (2003)
Including guidelines for employees' decision making in the codes	Nijhof *et al.* (2003) and Schwenke (2007)
Addressing value conflicts with codes of ethics	Svensson *et al.* (2009)
Creating a forum for discussing ethical dilemma	Brimmer (2007)
Rewarding code compliance behaviour	Tow and Loosemore (2009) and Rampersad (2006)
The use of ethics ombudsman (investigator)	Mathenge (2012)
Assessing individual value during recruitment and selection	Majluf and Navarrete (2011)
The use of ethics committee	Adam (2005)
Regular ethical audits	Suen *et al.* (2007)
Organization's ethical performance appraisal	Svensson *et al.* (2009)
The use of hotline system for reporting irresponsible behaviour	Webley and Werner (2008)
Using indicators for detecting ethical level of organization	Webley and Werner (2008)
Reporting ethically sound projects within the organization	Schwenke (2007)
Focusing on areas for special attention from annual ethical report	Nijhof *et al.* (2003)
Conducting employees' critical self-evaluation	Loumbeva (2008)
Sub-contractors and suppliers subscribing to codes of ethics	Svensson *et al.* (2009)
Establishing open communication system to challenge code themes	Nijhof *et al.* (2003)

Table I.
Indicators for codes of ethics embeddedness

with Hong Kong Institution of Engineers (HKIE) were similarly contacted. Due to relatively low-response rate of 20-30 per cent which has become norms of most postal questionnaire surveys of the construction industry (Akintoye, 2000), a cash coupon was attached to the questionnaire to boost the response rate. Both financial and material

incentives can be used to improve questionnaire response rate (Boyd, 2002; CDC, 2010; Lucko and Rojas, 2010). Out of 120 questionnaires administered to the part-time students, 90 were retuned, indicating 75 per cent response rate. Similarly, 100 questionnaires were distributed to HKIE members and 76 were filled and returned, representing 76 per cent response rate. In total, 166 questionnaires were returned out of 220 dispatched, representing 75 per cent overall response rate which was considered satisfactory (Fellows and Liu, 2003 recommended a minimum response rate of 30 per cent from a minimum sample size of 107). Six respondents failed to provide vital information, thus 160 questionnaires were valid for analysis. It is worth noting that the questionnaire were self-administered and all the respondents were working for construction companies in Hong Kong at the time the survey was conducted, even though they have diverse professional affiliations.

Data analysis and results

Questionnaire data were analysed using Statistical Package for the Social Sciences (SPSS) 20 to undertake three separate analyzes. First, reliability analysis was undertaken to determine the consistency of factors and reliability of the survey instrument using Cronbach's α model. From the result of the analysis, the overall Cronbach's α reliability for the 30 factors is 0.914, indicating an acceptable internal reliability and consistency of data set. Different authors have reported about the acceptable values of α, ranging from 0.70 to 0.95 (Tavakol and Dennick, 2011). Second, the next analysis ranked the factors based on mean value and standard deviation of the data. Lastly, the third analysis explored and categorized the factors for better understanding using factor analysis technique. Factor analysis has been identified as a statistical technique capable of identifying relatively small number of factors as representatives of relationship that exist among many interrelated variables (Akintoye, 2000). To extract the factors and investigate their structure, the principal component analysis is used in the analysis.

Analysis and ranking of factors for codes of ethics embeddedness

Among the respondents, 16 per cent had more than 11 years of working experience in the local construction organization; 9 per cent had between six and ten years of working experience; and 75 per cent worked for construction organization for not more than five years. The large percentage of the sample having limited working experience is due to inclusion of part-time students, which could have reflected in the final results. However, the advantage of this approach lies in the opportunity to brief the participants about the study. It was therefore believed that the results are the true reflection of their opinions. The mean scores and ranking of all the variables are tabulated in Table II in descending order. As shown in the results, all variables have mean scores ranging from 3.08 to 4.05, indicating that respondents were generally not in disagreement with the factors regarding codes of ethics embeddedness in construction organizations, only with different extent of agreement. Based on the five-point Likert scale, a factor is deemed "important" if it has a mean score $\geqslant$3.5. From the result shown in Table I, 28 factors are regarded as being important. The factors are ranked based on the mean score and standard deviation values. The standard deviation is used to rank two or more factors that tied, with the highest ranking assigned to the variables having the least standard deviation (Field, 2005). For example, items 11 and 12 in Table II have the same mean score of 3.74 and were ranked relative to standard deviation.

Item	Factors	Mean	SD	Rank
1	Protecting anyone who exposes alleged wrongdoing	4.05	0.912	1
2	Managers acting as role models	3.96	0.871	2
3	Giving code standards with explanation to new employees	3.92	0.858	3
4	Commitment of managing director to ethics	3.91	0.875	4
5	Updating code contents to reflect current issues in construction practice	3.84	0.814	5
6	Training about the importance of codes of ethics	3.82	0.845	6
7	Strategic planning of the company emphasizing long-term importance of codes of ethics	3.81	0.818	7
8	Identifying situations that encourage bad behaviour	3.80	0.838	8
9	Communicating codes with employees	3.79	0.835	9
10	Employees ethical appraisal	3.75	0.916	10
11	Regular revision of codes of ethics	3.74	0.857	11
12	Providing financial demand of codes of ethics	3.74	0.919	12
13	Consistence of codes with international standard (e.g. ILO)	3.72	0.840	13
14	Sub-contractors and suppliers subscribing to codes of ethics	3.70	0.866	14
15	Regular ethical audits	3.69	0.969	15
16	Addressing value conflicts with codes of ethics	3.65	0.756	16
17	Reporting ethically sound projects within the organization	3.63	0.858	17
18	Focusing on areas for special attention from ethical report	3.62	0.832	18
19	Establishing open communication system to challenge code themes	3.59	0.857	19
20	Regular meeting by supervisors to stimulate acting in accordance with codes	3.59	0.919	20
21	Including guidelines for employees' decision making in the codes	3.58	0.775	21
22	Using indicators for detecting ethical level of organization	3.54	0.875	22
23	Ethical performance appraisal	3.54	0.903	23
24	Rewarding code compliance behaviour	3.54	1.047	24
25	Conducting employees' critical self-evaluation	3.53	0.968	25
26	Assessing individual value during recruitment/selection	3.51	0.903	26
27	The use of hotline system for reporting irresponsible behaviour	3.51	1.000	27
28	The use of ethics committee	3.50	0.943	28
29	Creating a forum for discussing ethical dilemma	3.24	0.906	29
30	The use of ethics ombudsman (investigator)	3.08	1.096	30

Table II.
Factors determining code embeddedness

The highest ranking by all respondents was "Protecting anyone who exposes alleged wrongdoing" (mean = 4.05), which therefore was considered as an extremely influential factor to the embeddedness of codes of ethics in construction organizations. This factor ranked third among ethical intervention plans (Lloyd and Mey, 2010). "Managers acting as role models" (mean = 3.96) ranked second. Appelbaum *et al.* (2005) posit that the influence of deviant role models is one of the factors that makes individual to behave unethically. "Giving code standards with explanation to new employees" (mean = 3.92) ranked third. Lloyd and Mey (2010) suggest that formal orientation training for all new employees to provide information about codes of ethics is important. The fourth ranked factor was "commitment of managing director to ethics" (mean = 3.91). Salopek's (2001) study informs that 47 organizations with a more extensive commitment to codes of ethics revealed their market value added being three times on average, more than that of organizations with lesser commitments.

These four factors were the top ranked factors determining ethical code embeddedness in construction organizations of Hong Kong. In addition, it is worth noting, that all respondents perceived "creating a forum for discussing ethical dilemma" and "the use of ethics ombudsman" as the two least influential factors.

Factor analysis results

To use factor analysis, it is important to ascertain whether the data are suitable. Sample to variable ratio is recommended to determine data suitability (Williams *et al.*, 2010). Factor analysis technique required cases to variable ratio of 1:5 (Lingard and Rowlinson, 2006). This requirement is fulfilled in this study for assuring sufficient sample size to proceed with factor analysis, as item to subject ratio is approximately 1:6. Another test for data suitability is factorability of the correlation matrix which is used to display the relationships between individual variables (Yang *et al.*, 2009).

Principal components analysis requires that there be correlations values greater than 0.30 between the variables included in the analysis (Yang *et al.*, 2009). If no correlations go beyond 0.30, then the researcher should reconsider whether factor analysis is the appropriate statistical method to utilize (Williams *et al.*, 2010). The result of this study indicates several correlations greater than the recommended threshold of 0.3 suggesting suitability of the data for data analysis.

The use of factor analysis requires various tests to ascertain its appropriateness for factor extraction. Williams *et al.* (2010) suggest that multiple approaches be used in factor extraction. These include; the Kaiser-Meyer-Olkin (KMO) which measures sampling and the distribution of values adequacy (Chan, 2012), Bartlett's test of sphericity to measure the multivariate normality of the variables and the measure of sample activities (SMA) (Akintoye, 2000). The KMO index ranges from 0 to 1, with 0.50 considered suitable for factor analysis. The Bartlett's test of sphericity should be significant ($p < 0.05$) for factor analysis to be suitable (Williams *et al.*, 2010). The value of the KMO statistic is 0.911 (see Table III), which satisfies the condition for factor analysis since, a KMO value of greater than 0.5 is recommended in construction management research (George and Mallery, 1999). In this case, the value of the test statistic for sphericity is large (Barlett test of sphericity $= 2602.789$) and the associated significance level is small ($p = 0.000$), suggesting that the population correlation matrix is not an identity matrix (Akintoye, 2000). It is suggested that the MSA on the diagonal of the anti-image matrix should be reasonably high ($\geqslant 0.5$), in this study, the values range between 0.948 and 0.833, signifying no need to remove any factor from the factor analysis. Also, all the items have high values of factor loadings (0.418-0.791) which is greater than 0.32 recommended based on good rule of thumb as the minimum loading of an item (Tabachnick, 2001). In essence, these tests justify the fact that factor analysis is appropriate for the factor extraction.

Principal component analysis was undertaken which produced a six-factor solution with eigenvalues greater than 1, explaining 63 per cent of the variance. Although there is no fixed threshold for percentage of variance explained (Williams *et al.*, 2012), the 63 per cent reported in this study is greater than some reported cases in previous construction management research (Choudhry *et al.*, 2009; Hon *et al.*, 2012). The remaining unexplained residual variances could be as a result of potential factors not included in this study or limitation of the instrument to produce data with clear internal structure (Henson and Roberts, 2006). Eigenvalue greater than 1 as a criterion for categorizing factors is commonly used in construction management research (Akintoye, 2000; Yang *et al.*, 2009). The result in Table III shows varimax orthogonal rotation of principal component for interpreting these factors. The factors and the associated variables are interpreted as follows: factor 1 represents process of code internalization; factor 2 is identification and remover of barriers; factor 3 is process of enacting value; factor 4 represents process of accountability; factor

Variables	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Training about the importance of codes of ethics	*0.634*	0.130	0.250	0.094	0.450	0.109
Strategic planning of the company emphasizing long-term importance of codes of ethics	*0.727*	0.231	0.244	0.155	0.299	0.055
Communicating codes with employees	*0.730*	0.106	0.241	0.353	0.057	0.008
Regular meeting by supervisors to stimulate acting in accordance with codes	*0.569*	0.304	0.187	0.320	0.146	0.140
Reporting ethically sound projects within the organization	*0.485*	0.382	0.266	0.253	0.0.13	0.333
Focusing on areas for special attention from ethical report	*0.418*	0.287	0.310	0.225	0.055	0.280
Commitment of managing director to ethics	0.247	*0.761*	0.187	0.124	0.063	0.060
Consistence of codes with international standard (e.g. ILO)	0.206	*0.605*	0.252	0.146	0.336	0.168
Protecting anyone who exposes alleged wrongdoing	0.148	0.760	0.028	0.015	0.093	0.122
Providing financial demand of codes of ethics	0.127	*0.743*	0.101	0.364	0.139	0.068
Identifying situations that encourage bad behaviour	0.196	*0.525*	0.103	0.329	0.294	0.075
Managers acting as role models	0.350	*0.540*	0.087	0.081	0.067	0.173
Updating code contents to reflect current issues in construction practice	0.298	*0.552*	0.119	0.192	0.327	0.268
Including guidelines for employees' decision making in the codes	0.300	0.138	*0.443*	0.335	0.264	0.189
Creating a forum for discussing ethical dilemma	0.122	0.157	*0.674*	0.047	0.123	0.185
Rewarding code compliance behaviour	0.251	0.320	*0.449*	0.169	0.153	0.018
The use of ethics ombudsman (investigator)	0.070	0.690	*0.792*	0.215	0.165	0.053
Assessing individual value during recruitment/ selection	0.046	0.087	*0.512*	0.410	0.027	0.226
The use of ethics committee	0.300	0.097	*0.545*	0.010	0.273	0.317
The use of hotline system	0.154	0.133	*0.583*	0.257	0.097	0.213
Using indicators for detecting ethical level of organization	0.416	0.021	*0.556*	0.208	0.185	0.290
Conducting employees' critical self-evaluation	0.166	0.025	0.188	*0.750*	0.085	0.306
Sub-contractors and suppliers subscribing to codes	0.317	0.129	0.220	*0.527*	0.079	0.169
Establishing open communication system to challenge code themes	0.235	0.017	0.347	*0.588*	0.098	0.102
Addressing value conflicts with codes of ethics	0.272	0.202	0.332	*0.533*	0.141	0.106
Regular revision of codes of ethics	0.089	0.231	0.145	0.024	*0.758*	0.115
Giving code standards with explanation to new employees	0.218	0.338	0.028	0.091	*0.535*	0.211
Employees ethical appraisal	0.210	0.236	0.038	0.423	*0.631*	0.191
Regular ethical audits	0.200	0.128	0.348	0.183	0.175	*0.704*
Ethical performance appraisal	0.131	0.116	0.456	0.254	0.242	*0.664*
Eigenvalue	11.426	2.717	1.394	1.285	1.099	1.011
Percentage of variance explained	38.068	9.056	4.645	4.283	3.664	3.369
Cumulative variance %	38.086	47.141	51.787	56.069	59.733	63.102
Kaiser-Meyer-Olkin measure of sampling adequacy	0.911					
Bartlett's test of sphericity						
Approx. χ^2	2602.789					
df	435					
Sig.	0.000					

Table III.
Rotated component matrix (loading)

represents process of coding; the last but not the least, factor 6 is process of monitoring. The interpretation of the factors was inspired by existing literature relating to this study such as Nijhof *et al.* (2003).

Discussion of results

Factor 1: process of internalization

This factor accounts for the largest amount of total variance (38.068 per cent). This seems to be the most important process of code embeddedness. The finding agrees with Nijhof *et al.* (2003) that the process of internalization appears to receive a lot of attention in a case organization. The process encompasses six variables: training, strategic planning, communication, regular meeting to stimulate acting according to codes, reporting ethical sound projects and focusing on areas for special attention. Activities involved in internalization of codes of ethics aimed at acquiring the meaning of the code and encouraging employees to act responsibly (Nijhof *et al.*, 2003). Appropriating the code is deeper than simply agreeing to a set of values but entails meaningful translation of the code to aid employees' ethical behaviour in routine activities. The extent of internalization of the codes is one of the major factors that influence employee's conformance with code of ethics; this is similar to the finding by Cassell *et al.* (1997) cited in Sakyi and Bawole (2009).

Training is an important factor to codes of ethics embeddedness. It can be argued that proper training of employees on codes of ethics will not only enhance code effectiveness but also increase productivity since the employees know what to do ethically in any given circumstances. Training session on code of ethics will result to positive attitudes by employees and productivity growth in an organization (Mamic, 2003). For example, Mamic (2003) suggests that intensive training ranging from classroom to "on-the-job" might be given to those recruited to work as ethics compliance officers whilst lunch-time information sessions might be held for other staff. One important way of ensuring code internalization is the alignment of codes requirement with organization's vision by emphasizing long-term importance of codes of ethics. This will enable members to be accustomed with organizational system in terms of decision making as argued by Schwenke (2007).

Communication is an essential ingredient for effective management of codes of ethics (Ho, 2013). Ethical compliance standards must be properly communicated to all employees, which could be done by disseminating manuals (Adam, 2005), posters and e-mails (Ho, 2013). Based on a case-study by Ho (2013), improper communication of ethical codes hinders its effective implementation within the case organization. Other variables in this category are also important even though they ranked low among the factors enabling codes of ethics embeddedness as shown in Table II.

Factor 2: process of identifying and removing barriers

Factor 2 accounts for 9.056 per cent of total variance explained, comprising seven variables. The main activities in this segment aim at acquiring understanding into the risks and barriers that stifle responsible behaviour within an organization and taking proactive measure to remove those barriers. Before excellence can be achieved regarding responsible behaviour, it is imperative for organizations to identify the barriers which must be removed. The first step in removing barriers is to gather information about them as to know what and where they are (Nijhof *et al.*, 2003). In a case-study conducted by Nijhof *et al.* (2003), this process ranked third. Although the

case-study was conducted in a non-for-profit organization, the result is not far from what is obtainable in construction companies which are for-profit organizations.

The combination of the seven variables confirms the factors that can easily concede barriers during code implementation process. For example, lack of commitment of managing director to ethics (Schwenke, 2007), inconsistent of codes with international standard (Mamic, 2003), the fear of retaliating whistleblowing (Lloyd and Mey, 2010), non-conceding to financial demands of codes of ethics (Schwenke, 2007) and managers acting contrary to organizational ethical requirements, among others, will jeopardize the implementation of any ethics initiative and make it doomed to irrelevance. Identification and subsequent removal of barriers will permit embeddedness of codes of ethics in the construction organizations.

Factor 3: process of enacting values

Contributing 4.645 per cent of the total variance, this factor covers eight variables. It is the process of translating organization's positions/values into required actions as expressed in the codes of ethics. Enactment is considered to be an "integral process of responsibilization" believing that aligning behaviour with the code is implemental to further internalize the code (Nijhof *et al.*, 2003). Looking at the combination of articulated organizational values, the rate at which societal values change, and the aggregated individual moral convictions of the organization's workforce, all indicate the immutability of the ethical bearings of an organization as affirmed by Schwenke (2007).

It is appropriate for organization to take responsibility in ensuring desired value enactment via some mechanisms. Allowing employees to make decision based on the existing guideline in the codes of ethics (Schwenke, 2007), having discussed ethical dilemma, will enable them to willingly contribute to the requirements of codes of ethics (Fraedrich, 1992). Recognizing employees' ethical compliance by rewarding them is a veritable means will motivate them. The use of ethics ombudsman (Mathenge, 2012), acting the role of an independent arbiter is another way of encouraging employees to discuss ethical issues. This can be complimented by establishing hotline/helpline system (Webley and Werner, 2008). The essence of ethics committee is to ensure that ethical values of an organization are preserved. Assessment of employees' values during recruitment and selection for special assignment, enable the ethics committee to have an idea of organization and team ethical composition.

Factor 4: process of monitoring

This factor contributes 4.283 per cent of the total variance and contains four variables. This process shared the same percentage score with process of accountability, both being the least in terms of attention given by the organization examined by Nijhof *et al.* (2003). It is important for organization to set up a mechanism for monitoring the process of code implementation and administration via a responsible exercise. As Jenkins (2001) puts it, for implementation of codes of ethics to be guaranteed, an element of independent monitoring must be present. The essence of monitoring is to determine whether behaviour meshes with the code of ethics. An ethical organization monitors its results to ascertain that the expected outcomes are achieved in an ethically acceptable manner (Schwenke, 2007).

Encouraging employees to complete a self-evaluation within a comfortable process will enable them to honestly assess their strengths and also areas they need to improve in terms of ethical behaviour. This implies that employees are given the opportunity to

assess themselves ethically while the organization provides uniform format for the exercise (Loumbeva, 2008). This is expected to create some senses of responsibility regarding codes of ethics among the employees. Similarly, the engagement of sub-contractors and suppliers with codes of ethics makes it possible for them to be accountable for their conduct. Svensson *et al.* (2009) advise that suppliers and customers of organization should be informed about the existence and function of code of ethics. For proper monitoring, according to Nijhof *et al.* (2003), organization should communicate either in marketing or public relations, its wishes to be approachable concerning various themes of the codes of ethics. To complement the last point, organization should refer to codes of ethics in addressing value conflict either at the organizational or market level.

Factor 5: process of coding

The fifth factor is related to coding which accounts for 3.664 per cent of the total variance. This factor contains three variables: regular revision of codes of ethics, giving code standards with explanation to new employees and employee's ethical appraisal. By coding process, it means translating behaviour during incidents into established standard and target values within the organization. In a case-study performed at the municipality of Amsterdam (Nijhof *et al.*, 2003), the managements paid significant attention to process of coding. It is an expression of what an organization stands for in real sense expressed on the pages of written codes of ethics in a way that organization members can understand and behave accordingly (Nijhof *et al.*, 2003). The first approach is to establish a process to carry out a periodic review and update of codes of ethics to ensure that the values comprised in the codes are consistently the priority values of the organization. Schwenke (2007) attests to the importance of code revision.

Due to adaptation nature of human, it is expected that new employees are properly oriented to blend with the system of their new company by providing them with extensive information regarding organization's ethical standards and practice which are expected of them in their daily routine. Lloyd and Mey (2010) suggest that ethics training should commence with formal orientation training for all new employees. By employee's ethical appraisal, we refer to the assessment of employees prior to engaging them in the organization. This can be achieved by giving entrance examination about ethical codes of the company. This process is relevant since an attempt by any organization to become globally competitive can easily be hampered by engaging employees who lack ethical manner (Lloyd and Mey, 2010).

Factor 6: process of accountability

Although the last loaded factor accounts for the least total variance of 3.369 per cent, it contains only two salient variables, regular ethical audits and ethical performance appraisal. This process received less attention according to Nijhof *et al.* (2003) study, which implies that accountability process is considered less important by both for-profit and non-profit organizations. This process enables the stakeholders to focus on the requirements and rationales of the codes of ethics, before settling into selecting and committing to a set of activities. It highlights human involvement and makes the responsibility of various stakeholders explicit. Accountability in terms of ethical conduct will help the organization to have an idea (either perceived or real) of the extent to which stakeholders believe that a company take responsibility for ethical behaviour.

Past studies revealed the role of regular ethical audits in ensuring and maintaining ethical organization (Lloyd and Mey, 2010; Adam, 2005). Developing a proper auditing mechanism is important in accounting for ethical code adherence in an organization. This will help in identifying possible deviation from the established standard as well as applying necessary corrective actions. It enables recommendations to be made in order to make the code more efficient and relevant to address changing circumstances (Schwenke, 2007). Ethical audit should focus more on the organization as a whole rather than an individual and should be done by external ethics expert for effectiveness and transparency. In addition to ethical audit, organization should conduct periodic survey to appraise employee's understanding and commitment to code. This can be achieved by conducting ethical performance appraisal for the organizational members (Svensson *et al.*, 2009). Making employee's ethical appraisal a custom in an organization will sensitize them to always conduct themselves ethically during their normal routine. Employee's ethical performance appraisal helps the organization to reflect on the extent at which the code has assisted in guiding the members of that organization in their decisions and actions (Schwenke, 2007).

Conclusion

A comprehensive investigation of codes of ethics embeddedness is presented in this paper. From the questionnaire survey conducted with professionals working in contracting organizations in Hong Kong, factors determining code embeddedness were identified by exploratory factor analysis. Six factors were extracted from 30 variables developed through a synthesis of past studies and opinions from participants in the industry. Addressing the aim of this paper, the six empirically found critical factors determining embeddedness of codes of ethics are: process of code internalization, identification and remover of barriers, process of enacting value, process of accountability, process of coding and process of monitoring. In applying these processes in practice, the arrangement in this study does not imply the order to be strictly followed. However, neglecting any of the factors will hinder effective implementation of codes of ethics.

Although the study was conducted in Hong Kong, it is envisaged that the results should contribute positive theoretical and practical insights to the subject. The results presented in this study provide sufficient evidence and useful pointers to clarify some misconceptions about factors determining code embeddedness. The results similarly draw attention to the inadequate guidelines on ethics management in the current literature of construction management research. The improved understanding portrayed in this study should enable the development of strategies, methods and tools for better ethics management. Categorization of the variables under different principal factors allows construction organizations to readily assess the implementation and administration of codes of ethics. The methodology employed in this study can be replicated in other locations for further studies. Such studies may investigate the relationships between the principal factors and their associated variables. While this study has provided useful information regarding ethical codes, the limitation is inherent in the population of the study in that, percentage representation of construction organizations in Hong Kong could not be presented. This was due to the sensitivity of ethics as perceived by construction practitioners. The authors, at the initial stage, sent invitation letters to several organizations inviting them to participate in the research but they all declined. Therefore, the data collection approach discussed

earlier was adopted and the questionnaire was made strictly anonymous which made it difficult to classify organizations that are represented. Nevertheless, it is hoped that this paper will engineer a change in research direction and open up new discussion channels.

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