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KNOWLEDGE MANAGEMENT IN CONSTRUCTION: SOUTH AFRICAN CONTRACTORS' PERCEPTIONS

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Introduction

- **The study was conducted to address the following issues:**
 - **Contractors' replication of past errors / mistakes**
 - **Interns / new employees / existing employees do not develop at a rate possible if knowledge management were used to its full potential**
 - **Contractors do not improve performance**
 - **Contractors do not achieve the required standards**
 - **Clients are dissatisfied with overall performance**

Contractors replicate past errors / mistakes

- **Robeiro & Ferreira (2010) - KM offers an extensive possibility for application in construction projects**
- **Yu-Cheng *et al.* (2006) - sharing experience and knowledge leads to prompt solutions in the future i.e. problems are not repeatedly solved**

Development of interns / new employees / existing employees

- A KM framework can increase the ability of a site manager to learn from his / her environment and to incorporate knowledge into site management practices (Uwakweh, 2011)
- Experienced employees within an organisation need to guide / mentor new or developing employees
- Kamara *et al.* (2002) describe the key process of knowledge transfer or acquisition as involving employees in different situations or activities
- Processing an individual's personal knowledge into an organisation asset is an important step in the knowledge sharing process, in terms of a competitive advantage (Mohd *et al.*, 2011)

Contractors do not improve performance

- **Construction adds challenges as it is transient, and entails the establishment of new teams upon commencement of projects**
- **Constant adjusting and re-adjusting creates an atmosphere where it is difficult to work at peak performance**
- **Easy for contractors to become trapped in a routine, in this case, never improving on their previous performances**

Contractors do not achieve the required standards

- **Aspects of an organisation such as time constraints, lack of adequate KM resources, lack of communication skills, and attitude of the staff have an impeding influence on standard attainment (Mohd *et al.*, 2011)**

Clients are dissatisfied with overall performance

introduction

- A range of seminal reports report on client dissatisfaction, *inter alia*, the 'Egan' (1998) report
- Uwakweh (2011) - much scope for making construction organisations more competitive through better KM processes

Research method

- **Sample stratum - 63 medium and large sized general contractor members of the East Cape Master Builders Association (ECMBA)**
- **19 Responses = 30.6% Response rate**
- **Self-administered questionnaire circulated per e-mail**
- **7 sections, 25 questions, 19 of which were 5-point Likert scale type questions**
- **Descriptive statistics – frequencies and a measure of central tendency (MS)**

Research findings (1)

Number of Years	Response (%)
≤ 5 Years	5.7
> 5 Years ≤ 15 Years	10.5
> 15 Years ≤ 25 Years	36.9
> 25 Years ≤ 35 Years	31.6
> 35 Years	15.8

Table 1: Respondents' experience in the construction industry

Research findings (2)

Response (%)						
Unsure	NeverRepeatedly					MS
	1	2	3	4	5	
0.0	0.0	15.8	47.4	26.3	10.5	3.32

Table 2: Incidence of site worker mistakes / errors on projects

Response (%)						
Unsure	NeverRepeatedly					MS
	1	2	3	4	5	
0.0	0.0	57.9	31.6	10.5	0.0	2.53

Table 3: Incidence of site management mistakes / errors on projects

Research findings (3)

Parameter	Response (%)					MS	Rank	
	Unsure	NotVery						
		1	2	3	4			5
Cost	0.0	0.0	0.0	5.3	10.5	84.2	4.79	1
Productivity	0.0	0.0	0.0	5.3	21.1	73.7	4.68	2=
Quality	0.0	0.0	0.0	5.3	21.1	73.7	4.68	2=
Time	0.0	0.0	0.0	5.3	21.1	73.7	4.68	2=
Client satisfaction	0.0	0.0	5.3	5.3	15.8	73.7	4.58	5
H&S (construction)	0.0	0.0	0.0	5.3	42.1	52.6	4.47	6
H&S (public)	0.0	0.0	0.0	10.5	36.8	52.6	4.42	7
Developmental objectives	0.0	0.0	0.0	36.8	26.3	36.8	4.00	8
Designer satisfaction	0.0	5.3	10.5	10.5	31.6	42.1	3.95	9
Worker satisfaction	0.0	0.0	0.0	42.1	31.6	26.3	3.84	10
Environment	0.0	0.0	10.5	47.4	21.1	21.1	3.53	11

Table 4: Importance of reducing of past errors / mistakes in terms of the achievement of performance relative to the various project parameters

Research findings (4)

‘Does your organisation have procedures in place to prevent past errors / mistakes from being replicated?’

- **68.4% of respondents indicated their organisations have such procedures in place**
- **26.3% do not**
- **5.3% were unsure**

Response (%)						
Unsure	NotVery					MS
	1	2	3	4	5	
0.0	0.0	5.3	10.5	31.6	52.6	4.32

Table 5: Importance of knowledge sharing among employees in respondents' organisations

‘Does your organisation quantify the cost of errors / mistakes?’

- **73.7% of respondents indicated their organisations do**
- **26.3% do not**

Research findings (5)

Employee category	Response (%)						MS	Rank
	Unsure	Never	Monthly	Fort-nightly	Weekly	Daily		
Explicit:								
Graduate interns	10.5	5.3	15.8	15.8	36.8	15.8	3.11	1
New employees	10.5	5.3	15.8	21.1	31.6	15.8	3.05	2
Existing employees	10.5	15.8	21.1	26.3	15.8	10.5	2.53	3
Mean							2.90	
Tacit:								
New employees	5.3	0.0	15.8	10.5	42.1	26.3	3.63	1
Graduate interns	10.5	0.0	10.5	10.5	52.6	15.8	3.42	2
Existing employees	5.3	10.5	15.8	15.8	31.6	21.1	3.21	3
Mean							3.42	

Table 6: Frequency of explicit and tacit knowledge transfer in respondents' organisations

Research findings (6)

Employee category	Response (%)						MS	Rank
	Unsure	Never	Monthly	Fort- nightly	Weekly	Daily		
Existing employees	10.5	10.5	15.8	26.3	10.5	26.3	2.95	1
New employees	10.5	10.5	15.8	26.3	26.3	10.5	2.79	2
Graduate interns	15.8	15.8	10.5	21.1	26.3	10.5	2.58	3

Table 7: Frequency of knowledge sharing in respondents' organisations

Research findings (7)

Response (%)						
Unsure	Never	Monthly	Fortnightly	Weekly	Daily	MS
5.3	10.5	15.8	15.8	36.8	15.8	3.16

Table 8: Frequency respondents' organisations share best practice knowledge

Response (%)						
Unsure	MinorMajor					MS
	1	2	3	4	5	
0.0	0.0	0.0	10.5	47.4	42.1	4.32

Table 9: Extent to which knowledge sharing improves performance

Response (%)						
Unsure	MinorMajor					MS
	1	2	3	4	5	
0.0	0.0	5.3	10.5	36.8	47.4	4.26

Table 10: The extent the implementation of knowledge management / sharing will improve client satisfaction

Conclusions (1)

- **KM on site and within the organisation can improve site performance through the sharing and eventual transfer of knowledge from one individual to another**
- **Organisation with a KM plan, generally has a competitive edge over organisations who do not implement KM processes – reinforced by:**
 - **General standard of an organisation's work can be drastically improved through the implementation of KM through the reduction of past mistakes / errors**
- **Lack of KM culture within organisations in South Africa, and KM is generally not practiced to the extent as is in developed countries – reinforced by:**

Conclusions (2)

- Incidence of site worker and site management replication of past mistakes / errors on projects
- Low frequency of explicit and tacit knowledge transfer, particularly among existing employees
- Ultimately KM improves performance and client satisfaction