LITERATURE ANALYSIS ON THE IMPORTANCE OF INTEGRATING KEY PROFESSIONS WITHIN THE CONSTRUCTION INDUSTRY OF SRI LANKA THROUGH TEAM BUILDING CONCEPT

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Abstract— *Due to the prevailing tendency of key professions in Sri Lankan construction industry to diversify into other professions, the professionalism in the key personnel are significantly & gradually down streaming. Also, since the majority prefer to seek foreign employment, Sri Lanka is in a risk of losing the spirit of the key personnel to the country. This state will be a crucial condition to the construction industry of Sri Lanka in the near future since the professionals remained in the industry would be a lesser amount. This literature analysis elaborates the means of using the 'team building' concept within the construction professionals to integrate their knowledge and skills to produce a 'teamed' construction project. Data collection & Data analysis for this literature analysis were conducted by selecting two random research articles each on the importance of integrating the key professions within the construction industry, integrating the key professions within the construction industry, integrating the key professions within the construction industry of Sri Lanka, team building concept & team building concept for the Sri Lankan construction industry. Major finding of this study is that this condition has arose mainly due to the lack of knowledge sharing within the key professions and the cultural issues dominant in the country leading to diversify the key profession into other professions especially due to lack of team work. Thereby, the need of integrating the key professions of the Construction Industry is to be met & strengthened, from further studies on this research area.* ***248 words.***

Keywords— **Importance of integrating key professions, Sri Lankan Construction Industry, Team building concept**

I. INTRODUCTION

Sri Lanka is a developing country where the Construction industry plays a major role in the Industrial sector. In other words, the construction industry contributes to the economy of Sri Lanka at a major scale. Although there's a unique culture prevailing in the country, it is a known fact to all Sri Lankans, that there is a minor hindrance in knowledge-sharing within the key professions of any sector. Similarly, it is applicable to the construction industry of Sri Lanka as well. Thereby there's a tendency in the key professions of the construction industry to diversify into other professions or to seek foreign employments through their qualified professions.

A. Problem statement

Tendency of key professions in the construction industry of Sri Lanka to diversify into other professions due to lack of team work.

B. Problem Justification

Due to the prevailing tendency of key professions in Sri Lankan construction industry to diversify into other professions, the professionalism in the key personnel are significantly & gradually down streaming. Also, since the majority prefer to seek foreign employment, Sri Lanka is in a risk of losing the spirit of the key personnel to the country

II. RESEARCH METHODOLOGY

A. Data Collection & Data Analysis

Data collection & Data analysis for the research was conducted by selecting two random research articles each from the following topics.

I. Importance of integrating the key professions within the construction industry
II. Integrating the key professions within the construction industry
III. Integrating the key professions within the construction industry of Sri Lanka
IV. Team building concept
V. Team building concept for the construction industry

VI. Team building concept for Sri Lankan construction industry

III. LITERATURE REVIEW

A. Importance of integrating the key professions within the construction industry

G. Ofori states in the article, 'Challenges of Construction Industries in Developing Countries: Lessons from Various Countries' published in the year 2000, that "The importance of taking measures to improve the performance of the construction industry has now been recognized in several countries at various levels of socio-economic development". The author also identifies in the literature (Chapter: Key Challenges & their Implications: Construction industry development) about six strategic thrusts namely,

i. Enhancing the Professionalism of the Industry
ii. Raising the Skills Level
iii. Improving Industry Practices and Techniques
iv. Adopting an Integrated Approach to Construction
v. Developing an External Wing
vi. A Collective Championing Effort for the Construction Industry

In the literature chapter 'Globalization' the reviews, "Raftery et al (1998) identified three trends: (a) a greater extent of private-sector participation in major infrastructure projects; (b) increasing vertical integration in the packaging of construction projects which are growing larger; and (c) increased foreign participation in the construction industries of most of the countries, almost all of which are developing". Also, in the chapter 'Culture', author reviews that "In particular, effort should be made to formulate procurement approaches which enable and facilitate the integration of the construction process in the context of the country concerned." Further, the author discusses that, "Studies on the culture of construction and construction-related firms, projects and workers in the developing countries would, among other things: help project managers to integrate the contributions of the project participants most effectively".

B.K. Baiden, A.D.F. Price & A.R.J. Dainty (2006) discusses in their article on 'The extent of the team integration within construction projects' that "various parties that come together to deliver a project need to reorient themselves by treating each member as an equal stake-holder and an important player in the project team".

B. Integrating the key professions within the construction industry

Abdelnaser Omran & Abdul Aziz Hussin (2009) state in their Introduction that "A formal design team may be assembled to plan the physical proceedings, and to integrate those proceedings with the other parts". Also, they introduce that "The increasing complexity of construction projects creates the need for design professionals trained in all phased of the projects life-cycle and develop an appreciation of the building as an advanced technological system requiring close integration of many sub-systems and their individual components, including sustainability". Further they state, "It is the responsibility of these construction professionals to exercise all reasonable skill, care and diligence and display their expertise according to the professional standards in the modern building engineering world. The construction professionals that to be discussed regarding this issue, are the professions of an architect, engineer and quantity surveyor".

David C. Kent & Burcin Becerik-Gerber (2010) describes in the Abstract, "Integrated project delivery IPD seeks to improve project outcomes through a collaborative approach of aligning the incentives and goals of the project team through shared risk and reward, early involvement of all parties, and a multiparty agreement". Further they state that their research was based on the "results of a web-based survey that was designed to target a wide range of construction professionals in an effort to shed light on current status of IPD use and its future widespread adoption by the construction industry".

C. Integrating the key professions within the construction industry of Sri Lanka

Silva Susil Kumara & Bhadra Jinadari Hewapattu Arachchige (2017) abstracts in their paper that, "Mainly there are shortages of people in construction industry of Sri Lanka in the categories of unskilled workers (laborers), craftsmen and construction machine operators and experienced construction professionals"

Nayanthara De Silva, R.W.D.W.C.A.B. Rajakaruna & K. A. T. N. Bandara (2013) discusses the policies described under the topic 'Government Policies' are "able to provide a framework for enabling and facilitating the development of the domestic construction sector through professional development, business enterprise and productivity enhancement". Also, they discuss "The construction

industry suffers from inadequate supply of professionals, less skill levels of fresh graduates and skilled labor force. High demand for the professionals in many countries and low level of salary schemes in the local industry may reduce the number of professionals retained in the local construction industry" under the topic 'Skill'. The authors recommend 'Adopting Incentive Awarding Mechanism' stating that "The organisation can provide financial incentives for staff to undertake long-term training programmes and continuously, professional development programmes such as short courses, seminars, conferences are also be considered". Further, they discuss under 'Improving Professionalism" that, "Respondents felt that professionalism can improve through enhancing professional practices, relationships and knowledge. Respondents proposed that the improving knowledge of professionalism can be started at the primary education level and continuously carried out up to the practitioner level".

D. Team Building Concept

Paul Buller (1986) defines the team building concept as, "A planned series of meetings facilitated by a third-party consultant, with a group of people having common organizational relationships and goals that is designed specifically to improve the team's task accomplishment by problem solving procedures and skills and then solving the team's major problems".

Ms. Neelam Saraswat & Dr. Shilpi Khandelwal (2015) state "few recommendations related to conduct of Team Building Exercises and use of Team Building Exercise sessions:

(1) Team building exercises must be used only for developmental purpose. It should not be linked with any punishment for not active participation in the exercises.

(2) To make team building activity live up to its true potential and to fetch maximum result out of it, it is necessary to integrate the team building with real-time work goals.

(3) It is necessary to make the good feelings and the outcomes from the team building activity last beyond the final team building exercise.

(4) The likely long-term effectiveness of a team building event is enhanced when organizations incorporate annual team building events into an overall company structure.

(5) Proper designing of team building intervention and also its proper conduct is necessary. Poorly designed team building exercises may lead on failure of team building interventions and also team structure.

(6) After team building exercises, there are likely chances that people will go back to their old ways of doing things once they go back to the office. Teams need support to build their strength gradually to change deep-rooted systems effectively.

(7) After the onetime event, there should be follow up workshops. To have a successful team building process, the workshops should be well planned.

(8) Team building should result in actionable ideas to help the team and the organization achieve their goals. Continued learning and reinforcement are necessities.

E. Team building concept for the construction industry

Mike Bresnen & Nick Marshall (2000) have researched about 'Developing Collaborative relationships' where the research aims and objectives state that, "In all projects (including the more conventional ones), collaboration was seen as important and considerable emphasis was placed upon developing a team culture and fostering the 'right attitudes". The authors describe both pros and cons of the team building concept as, "views on formal teambuilding ranged, however, from enthusiasm to skepticism" where they criticize the team building concept in 'Building collaboration: the use of tools and techniques: Teambuilding, charters and facilitation' as "teambuilding also sometimes failed to diffuse organisational or professional differences or to bring around those not considered to have the 'right attitudes'. Also, they state that "although teambuilding might be valuable in helping promote collaboration, it was by no means sufficient, nor a panacea for overcoming team-related problems." Their research findings explain that "many of the problems were due to clear differences in objectives between project teams and other internal departments upon whom the project team depended for resources". Also, they explain, "need for influential managers to take action to avoid the project team's interests being ignored and the team being effectively marginalized". In the conclusion they state, "Teambuilding also consistently emerges as a desirable and often necessary way of helping align teams behind project goals and objectives (even with long term partnering, since collaboration depends so much on individual behaviour)". Further they state that, formal teambuilding by no means guarantees collaboration and that teams can suffer from the dysfunctional effects of over-cohesion".

Mike Bresnen, A. D. F. Price & Andrew Dainty (2006) refers the team building concept as to 'team integration'.

In the introduction they state that, "Attempts at team integration in the construction industry have been largely focused on project procurement and product delivery processes" In the discussion they state that "By continually measuring team integration against such a tool, performance then can be managed in a pro-active way, rather than having to rectify poor performance after it has occurred". Further they conclude describing, "Team integration has been suggested as a way of addressing this inefficiency by breaking down barriers to effective collaborative working"

F. Team building concept for Sri Lankan construction industry

Akalanka Hapuarachchi & Dr. Sepani Senaratne (2011) have researched about 'Construction project teams and their development' where they suggest a model "fairly similar to the similar to the process suggested by the Tuckman and Jenson model (1977). They discuss in their research findings that, "The nature of the construction team is discussed in terms of disciplines of the members, team leader, accountability, interdependencies, consistency of the members, and, objectives of the members as illustrated below

(1) Disciplines of the Members
(2) Team Leader
(3) Accountability
(4) Interdependencies
(5) Consistency of the Members
(6) Objectives of the Members"

Also, they have discussed in the research findings that, "The types of teams in construction is discussed in terms of virtual, cross-functional, and, inter-organizational teams". Under the research findings 'Team Development', the authors discuss, "some members indicated that conflicts occurred when the team is transferring from design to construction or from one trade of works to another". In the conclusion they state "It is clear that construction teams are fairly different from the ideal teams mainly due to the lack of mutual accountability and common objective". Also, they mention, "it was also evident that most of the key issues relating to construction teams such the leadership and the accountability were significantly governed by the contractual conditions." Further they state, "The model suggested by this study is important for construction team leaders to have better allocation of resources and leadership support for the team based on the specific challenges which the team is facing in each stage of team development". Finally, they conclude, "It was also identified that progression through team development process has a strong positive relationship with the team learning."

Iniya Sriskandarajah and Chandanie Hadiwattege (2018) state in their research on "Construction Industry Investment Challenges Barriers for SME Expansion" where 'SME' refers to Small and Medium Contractors, "Considering the asset level analysis, in overcoming the barriers for SME expansion, for a small contracting organisation, firstly, it would be required to establish the organisation in terms of vision, mission, management and staff. In doing so, building up the team spirit is vital and it would require extra efforts in stabilising the organisations."

Author/Authors	**Year of Publication**	**Major Findings**
Paul Buller	1986	A planned series of meetings facilitated by a third-party consultant, with a group of people having common organizational relationships and goals that is designed specifically to improve the team's task accomplishment by problem solving procedures and skills and then solving the team's major problems. (Definition)
G OFORI	2000	The importance of taking measures to improve the performance of the construction industry has now been recognized in several countries at various levels of socio-economic development.
Mike Bresnen & Nick Marshall	2000	In all projects (including the more conventional ones), collaboration was seen as important and considerable emphasis was placed upon developing a team culture and fostering the 'right attitudes' (Research aims & Objectives: Developing Collaborative relationships).
		"teambuilding also sometimes failed to diffuse organisational or professional differences or to bring around those not considered to have the 'right attitudes' (Building collaboration: the use of tools and techniques: Teambuilding, charters and facilitation)
		"although teambuilding might be valuable in helping promote collaboration, it was by no means sufficient, nor a panacea for overcoming team-related problems" (Building collaboration: the use of tools and techniques: Teambuilding, charters and facilitation)
		"views on formal teambuilding ranged, however, from enthusiasm to skepticism" (Building collaboration: the use of tools and techniques: Teambuilding, charters

		and facilitation).
		"many of the problems were due to clear differences in objectives between project teams and other internal departments upon whom the project team depended for resources" (Findings: Managing user and other stakeholder relationships)
		"need for influential managers to take action to avoid the project team's interests being ignored and the team being effectively marginalized" (Findings: Managing user and other stakeholder relationships)
		"Teambuilding also consistently emerges as a desirable and often necessary way of helping align teams behind project goals and objectives (even with long term partnering, since collaboration depends so much on individual behaviour)" [Concluding Discussion]
		"formal teambuilding by no means guarantees collaboration and that teams can suffer from the dysfunctional effects of over-cohesion" [Concluding Discussion]
Mike Bresnen, A. D. F. Price & Andrew Dainty	2006	Attempts at team integration in the construction industry have been largely focused on project procurement and product delivery processes (Introduction)
		By continually measuring team integration against such a tool, performance then can be managed in a pro-active way, rather than having to rectify poor performance after it has occurred (Discussion: Measurement of Integration).
		Team integration has been suggested as a way of addressing this inefficiency by breaking down barriers to effective collaborative working (Conclusion & Further research)
B.K. Baiden, A.D.F. Price, A.R.J. Dainty	2006	"various parties that come together to deliver a project need to reorient themselves by treating each member as an equal stake-holder and an important player in the project team."
Abdelnaser Omran, Abdul Aziz Hussin	2009	A formal design team may be assembled to plan the physical proceedings, and to integrate those proceedings with the other parts. (Introduction)
		"The increasing complexity of construction projects creates the need for design professionals trained in all phased of the projects life-cycle and develop an appreciation of the building as an advanced technological system requiring close integration of many sub-systems and their individual components, including sustainability" (Introduction).
David C. Kent & Burcin Becerik-Gerber	2010	"Integrated project delivery IPD seeks to improve project outcomes through a collaborative approach of aligning the incentives and goals of the project team through shared risk and reward, early involvement of all parties, and a multiparty agreement" (Abstract).
Akalanka Hapuarachchi & Dr. Sepani Senaratne	2011	1. The nature of the construction team is discussed in terms of disciplines of the members, team leader, accountability, interdependencies, consistency of the members, and, objectives of the members as illustrated below (Research Findings: Nature of the Construction teams);
		(1) Disciplines of the Members
		(2) Team Leader
		(3) Accountability
		(4) Interdependencies
		(5) Consistency of the Members
		(6) Objectives of the Members
		2. The types of teams in construction is discussed in terms of virtual, cross-functional, and, inter-organizational teams (Types of teams in Construction).
		3. some members indicated that conflicts occurred when the team is transferring from design to construction or from one trade of works to another. (Team Development)
		4. It is clear that construction teams are fairly different from the ideal teams mainly due to the lack of mutual accountability and common objective. (Conclusion)
		5. "It was also evident that most of the key issues relating to construction teams such the leadership and the accountability were significantly governed by the contractual conditions." (Conclusion)
		6. Construction teams undergo a team development process fairly similar to the process suggested by the Tuckman and Jenson model (1977)

		7. The model suggested by this study is important for construction team leaders to have better allocation of resources and leadership support for the team based on the specific challenges which the team is facing in each stage of team development. (Conclusion)
		8. It was also identified that progression through team development process has a strong positive relationship with the team learning. (Conclusion)
Nayanthara De Silva, R. W. D. W. C. A. B. Rajakaruna & K. A. T. N. Bandara	2013	"such policies are able to provide a framework for enabling and facilitating the development of the domestic construction sector through professional development, business enterprise and productivity enhancement" (Discussion: Government Policies).
		The construction industry suffers from inadequate supply of professionals, less skill levels of fresh graduates and skilled labor force. High demand for the professionals in many countries and low level of salary schemes in the local industry may reduce the number of professionals retained in the local construction industry (Discussion: Skill).
		The organisation can provide financial incentives for staff to undertake long-term training programmes and continuously, professional development programmes such as short courses, seminars, conferences are also be considered (Discussion: Adopting Incentive Awarding Mechanism).
		Improving professionalism was identified as the fourth factor. Respondents felt that professionalism can improve through enhancing professional practices, relationships and knowledge. Respondents proposed that the improving knowledge of professionalism can be started at the primary education level and continuously carried out up to the practitioner level. (Discussion: Improving Professionalism)
Ms. Neelam Saraswat & Dr. Shilpi Khandelwal	2015	"few recommendations related to conduct of Team Building Exercises and use of Team Building Exercise sessions:"
		(1) Team building exercises must be used only for developmental purpose. It should not be linked with any punishment for not active participation in the exercises.
		(2) To make team building activity live up to its true potential and to fetch maximum result out of it, it is necessary to integrate the team building with real-time work goals.
		(3) It is necessary to make the good feelings and the outcomes from the team building activity last beyond the final team building exercise. For this organizations must work upon their policies on the basis of feedback received from TAQ assessment.
		(4) The likely long-term effectiveness of a team building event is enhanced when organizations incorporate annual team building events into an overall company structure.
		(5) Proper designing of team building intervention and also its proper conduct is necessary. Poorly designed team building exercises may lead on failure of team building interventions and also team structure.
		(6) After team building exercises, there are likely chances that people will go back to their old ways of doing things once they go back to the office. Teams need support to build their strength gradually to change deep-rooted systems effectively.
		(7) After the onetime event, there should be follow up workshops. To have a successful team building process, the workshops should be well planned.
		(8) Team building should result in actionable ideas to help the team and the organization achieve their goals. Continued learning and reinforcement are necessities.
Silva Susil Kumara & Bhadra Jinadari Hewapattu Arachchige	2017	"Mainly there are shortages of people in construction industry of Sri Lanka in the categories of unskilled workers (laborers), craftsmen and construction machine operators and experienced construction professionals" (Abstract).
Iniya Sriskandarajah and Chandanie Hadiwattege	2018	Considering the asset level analysis, in overcoming the barriers for SME expansion, for a small contracting organisation, firstly, it would be required to establish the organisation in terms of vision, mission, management and staff. In doing so, building up the team spirit is vital and it would require extra efforts in stabilising the organisations.(Research Findings and Analysis)

Table 1. Summarized findings of the Literature analysis

IV. CONCLUSION

Diversification of key personnel in the construction industry into other professions are seen to be a

significant feature in the current state of the Construction industry of Sri Lanka. Major finding of this study is that this condition has arose mainly due to the lack of knowledge sharing within the key professions and the cultural issues dominant in the country leading to diversify the key profession into other professions especially due to lack of team work. This literature analysis supports to strengthen the research gap in diversifying the key professions in Construction Industry of Sri Lanka into other professions. Thereby, the need of integrating the key professions of the Construction Industry is to be met & strengthened, from further studies on this research area.

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