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Essential Skills and Training Provisions for Building Project Stakeholders in Palestine

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Abstract: The primary aim of this paper is to identify the skills that both construction clients and contractors identify as critical to improving the building sector's overall productivity in the Gaza Strip, Palestine. Through a comprehensive questionnaire targeting key project stakeholders (namely, clients and contractors), this paper also evaluates the factors affecting skills upgrade and the continuity of training approaches currently used in this sector. Mentoring appears to be the preferred training approach for clients and contractors alike. According to respondents, decision-making, problem solving and goal setting skills are highly critical. Furthermore, conventional face-to-face meetings were identified as the most suitable communication channel to obtain and exchange project information. Staff self-interest and willingness to upgrade their skills were ranked as the most important factors influencing the effectiveness of the professional training process. Based on the study findings, the paper concludes with a set of practical recommendations.

Keywords: Contractors, Clients, Skills, Training, Gaza Strip

INTRODUCTION

The construction sector is one of the main economic engines driving the Palestinian national economy. The expansion of this sector has played a crucial role in extending job opportunities for the skilled, semi-skilled and unskilled local workforce. According to recent statistics, the sector accommodates about 10.8 per cent of the workforce (PCU, 2006). Several factors have contributed strongly to the growth of this sector, including the integration of the Palestinian economy into the much larger and wealthier Israeli economy and the oil boom that enabled Palestinians working in the Arabian Gulf to increase their capital inflows into Palestine, most of which was invested in construction and housing activities (PECDAR, 2007).

As is the case in other economies, construction activities have strong linkages with other sectors. On the one hand, construction activities increase the demand for the products of other industries, thus increasing the value-added component in these industries. On the other hand, construction activities supply other industries with the facilities necessary to undertake their business activities.

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Supporting these linkages tends to promote growth and development, since demand becomes more circumscribed within the same economy (PECDAR, 2007).

Given the centrality of the building sector in the Palestinian economy, this paper presents and discusses key survey findings on how local clients and contractors perceive factors that affect staff skills upgrade and the continuity of training approaches currently used in the building sector. The rest of the paper is organised as follows. In order to contextualise our research, the next section briefly reviews the extant literature. The following sections present our research methodology and results regarding the ranking of the skills required as well as the critical factors as perceived by key building project stakeholders at the local level, namely, clients and contractors. Finally, the paper draws some conclusions based on the study's findings and provides practical recommendations.

LITERATURE REVIEW

Training

Muya et al., (2004) reported a number of factors that influence skill availability, including training provisions, which govern the supply of skills; sector volume capacity, which drives the demand for skills; and other socio-cultural as well as public policy sector determinants of skills development. One efficient technique used to improve the capabilities of construction professionals is training. Muya et al., (2003) emphasised that appropriate training can only be developed if training needs are carefully identified; this requires interested parties to understand and anticipate the skills needed from their staff. Farrell and Gale (2003) strongly recommended mandatory attendance at training programs for novice project managers before they are allowed to take charge of construction sites.

Qualifications, skills and experience play a major role in staff appointments. Indeed, the career path progression is sometimes an important criterion used by employers in the appointment of site managers (Farrell and Gale, 2003). Odusami (2002) concluded that some of the managerial skills can be acquired at school, while others may only be acquired in the field. Farrell and Gale (2003) observed that for craft managers, the four top-ranked skills affecting their career were judgement, self-managing, social and leadership skills. For the craft-graduate manager, the four top-ranked skills were organising, managing, leadership and decision-making skills. Finally, for the graduate manager, the four top-ranked skills were written communication, computer literacy, numerical and technical skills.

Muya et al., (2003) identified several factors needed to provide continuity in training provisions for construction project stakeholders, including:

- Sustainable financing;
- Appropriate recruitment, training and retraining strategies;
- Availability of local training courses;
- Availability of financial incentives to train workers; and
- Alternative recruitment options, including attracting craft-workers currently employed in other industries.

Odusami (2002) argued that the best training approach is working with a mentor. Herthington and Barcelo (1985) defined mentoring as "the guiding of a novice in professional development and the journeying together towards professional excellence." Gushgari et al., (1997) concluded that working with a mentor is the most desirable training approach for both managers and principals. Furthermore, McNamara et al., (1997) reported the importance of having a mentor who possesses the skills of a learning facilitator and is able to "make time" to support the novice associate. Importantly, the relationship between the novice and the mentor is based on respect, empathy and trustworthiness.

The availability of skilled labour is a major factor in the quality of products offered and the confidence customers have in an industry (Muya et al., 2003). Ejowhomu et al., (2006) proposed "multi-skilling" as a strategy for addressing issues such as inadequacy of labour pools, low productivity, an over-stretched labour force, and long-term labour shortages. For Ofori (1994), "multi-skilling" is a labour utilisation strategy that is "motive-driven", while Ejowhomu et al., (2006) defined it as a labour utilisation strategy in which workers possess a range of skills appropriate for more than one work process and are used flexibly in any given project. A multi-skilled construction trade worker is simply an individual who possesses or acquires a range of skills and knowledge and applies them to work tasks that may fall outside the traditional boundaries of his or her original trade. Burleson et al., (1998) presented several benefits that can be realised via multi-skilling.

Hayles and Egbu (2004) postulated that the skills and attributes that currently characterise a successful Knowledge Management (KM) practitioner would improve dialogue and facilitate enhanced communication, within and between organisation and construction industry. They divided successful KM skills into two categories: 1) skills

embedded in KM, such as communication, strategic thinking, leadership tools and techniques, and management skills; and 2) personal attributes, such as motivation, passion, persistence, patience, sensitivity, intelligence and being life-long learner.

Skills

Muya et al., (2004) emphasised that the future effectiveness of the construction industry in every country depends on the quality of the trained and educated workforce; moreover, the demand and supply of these skills rely on administrative staff as well as on skilled labour forces. Several studies (Odusami, 2002; Odusami et al., 2007; Charlesraj et al., 2004; Gushgari et al., 1997; Muya et al., 2004; Farrell and Gale, 2003) have investigated the skills that are essential in enhancing the performance of the construction industry. A number of these studies have covered the necessary skill capabilities needed for the effective application of modern management techniques, such as total quality management and knowledge management.

Within this context, "skill" can be defined in a number of ways; Odusami (2002) defined it as 1) the ability to perform a task well or better than average, or 2) as the ability to translate knowledge into action. Gushgari et al., (1997) defined communication skills as the ability to interact effectively with others at all levels; administrative skills include the ability to manage and control projects relative to budgetary constraints; and decision-making skills involve the ability to take appropriate actions under time, information and resource constraints.

Katz (1974) identified three managerial skill categories that are essential to successful management: technical, human and conceptual. Technical skills involve process (or technique), knowledge and proficiency. Human skills involve the ability to interact effectively with people, whereas conceptual skills involve the formulation of ideas. Thus, technical skills deal with 'things', human skills concern people, and conceptual skills have to do with ideas. The online management modern website (2007) claims that a manager's level in an organisation determines the relative importance of possessing technical, human, and conceptual skills. Supervisors, for example, need technical skills to manage their area of specialty, whereas top-level managers need conceptual skills in order to view the organisation as a whole. All levels of management need human skills in order to successfully interact and communicate with other people.

Goodwin (1993) stated that the project manager requires technical skills for several reasons. First, technical skills are necessary to understand the integrated features of a project in terms of budgets, schedules and specifications.

Second, technical skills are needed to be able to resolve technical problems that may occur during the design and implementation stages of the project. Third, technical skills are required to understand and coordinate work. Finally, technical skills are needed to effectively communicate with others from a technical point of view.

In the context of effective construction project leadership, Odusami (2002) has identified and investigated 13 different skills: decision-making, planning and goal-setting, organising, problem-solving, listening, leadership and motivation, communication, delegation, negotiation, technical knowledge, time management, quality management and financial management. His investigation revealed that decision-making, leadership and motivation, and communication skills are the most important skills for clients, consultants and contractors, respectively. Interestingly, delegation and negotiation skills were ranked last in Odusami's study for these three groups of project stakeholders.

Gushgari et al., (1997) investigated 20 critical skills and their contribution to long-term profitability; they identified communication skills as the most critical skill for professionals in engineering firms. Farrell and Gale (2003) carried out a similar investigation into the main skills that a project manager must possess; their findings were similar to those obtained by Odusami (2002) and Gushgari et al., (1997).

RESEARCH METHODOLOGY

Data were collected through a mail-based questionnaire survey. Due to their crucial roles in realising building projects, the survey targeted only local residential and non-residential building clients and contractors. We did not include other project stakeholders because we do not believe that they have the same level of influence on the local sector's productivity, which is the ultimate aim of this study. The survey asked both clients and contractors to reflect upon the type of skills perceived as essential in improving the productivity performance of the local sector as well as the relative importance of these skills and related training provisions.

Questionnaire Description

The questionnaire was comprises of five parts. The first part was designed to collect background information about the respondent and his or her company. The second part instructed the respondent to rank five approaches reported in the literature as essential in developing and improving the performance level of their staff. The third part asked respondents to rank a total of 21 skills identified

in the literature in terms of their importance. The fourth part was designed to evaluate the most preferable tools or techniques used for managing and exchanging project information and knowledge, including face-to-face meetings, regular "brainstorming" sessions, reports and documents, telephone communication, the Internet, and special computer networks. Finally, the fifth part investigated different perspectives regarding the five most important factors affecting skills improvement and continuity in training provisions.

The relative importance index (RII) (Naoum, 1998; Assaf et al., 2001; Fink, 1995) was utilised in data analysis. This index was calculated using Eq. (1), where a_i is equal the weight of a response, x_i is the frequency of the response, and n is the number of weights.

$$R.I.I = \sum_{i=1}^{n} [(a_i.x_i)/n].100\%, \quad [1]$$

A five-point Likert type scale was used to rate the agreement levels identified by the respondents; a rating of one represented strong disagreement, while five represented strong agreement. The level of agreement between the groups of contractors and clients was evaluated, and the Spearman's rank correlation (rho) was applied to measure the level of such agreement. Eq. (2) (Naoum, 1998) was used to calculate the correlation between the two groups, where Rs is Spearman's rank correlation coefficient, d is the difference in ranking between the contractors and clients, and N is the number of variables (or factors) for each group of questions.

$$Rs = 1- [6\sum d^2 /N (N^2-1)] \quad [2]$$

Sample Size Determination

We carried out pilot testing to remove any ambiguities in the questionnaire. With the help of seven project managers and engineers, a small number of vague statements were identified. Minor amendments were accordingly made to improve the clarity of the statements prior to mailing the questionnaire to the target population. The target population was comprised of companies classified under Gaza's local building categories and their major clients or representatives (e.g., Municipalities and Consulting Offices). According to the Palestinian Contractors Union, there are 100 contractors classified under five different categories based on the maximum value of the projects for which they are eligible to tender. Based on the engineering syndicate lists, there are 40 major clients operating within Gaza. The sample size was obtained using Eq. (3) (Kish, 1965), where N is the total population, n is the sample size from the finite population, and n' is the sample

size from the infinite population. Note that this last term is calculated as S^2/V^2, where S is the variance of the population elements so that $S^2 = (P)/(Q)$, where P is the probability of error existence and Q is the probability of there being no error.

$$N = [n'/ (1+n'/N)], \quad [3]$$

As per Eq. (3), the questionnaire was distributed to 50 contractors and 28 clients, including their representatives. In total, 34 completed questionnaires were returned by the contractors, representing a 68% response rate, while 25 clients (or their representatives) returned completed questionnaires, representing a 90% response rate.

STUDY RESULTS

Training Approaches

As shown in Tables 1 and 2, contractor and client respondents were satisfied with mixing experienced staff with new graduates; in other words, they saw working with a mentor as the most preferred approach to improving staff capabilities. This approach was ranked the highest, by both classes of respondents, reflecting strong agreement that such an approach may be ideal in benefiting both the firm and the staff. This finding extends the results of Gushgari et al., (1997) and Odusami (2002), which highlight the advantages of the mentoring approach, such as fewer costs, less effort and ease in gaining relevant work experience. Sending staff to specialised local institutions for both practical and technical support was ranked second by both groups of respondents, reflecting a desire by all parties to improve staff capabilities.

Despite ranking this approach second, the contractors' attitudes were not too strongly supportive of this approach; the majority of their responses were close to neutral (rating 3 on the Likert type importance scale). Regular outsourcing to experts was ranked third and fourth by contractors and clients, respectively. Sending staff abroad was ranked last by contractors. The huge workload coupled with the small profit margin realised by contractors may have contributed to this ranking. The Spearman's rank correlation coefficient (rho) value was 0.75, reflecting a strong agreement between the two groups as depicted in Tables 1 and 2.

Essential Skills

Tables 3 and 4 show the rankings of skills in terms of importance as perceived by contractors and clients, respectively. The results demonstrate that decision-making and problem-solving skills were ranked first by contractors.

Table 1. Rankings of Training Approaches by Contractors

Approach/Method	Frequency of response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Mix experienced staff with new graduates (working with mentor)	20	13	1	0	0	34	4.558	0.912	1
Send staff to local specialised institutions for both practical and technical support	8	13	9	4	0	34	3.735	0.747	2
Regularly outsource expertise to train staff	4	18	9	3	0	34	3.676	0.735	3
Engage in a joint venture with companies that have experiences in several fields of work.	8	14	3	7	2	34	3.558	0.712	4
Send staff abroad for a fixed period of time to improve their practical 'hands-on' skills	7	4	12	10	1	34	3.176	0.635	5

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree; and 1: Strongly Disagree.

Table 2**.** Rankings of Training Approaches by Clients

Approach/Method	Frequency of response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Mix experienced staff with new graduates (working with mentor)	13	12	0	0	0	25	4.52	0.904	1
Send staff to local specialised institutions for both practical and technical support	9	12	3	1	0	25	4.16	0.832	2
Send staff abroad for a fixed period of time to improve their practical 'hands-on' skills	8	10	4	2	1	25	3.88	0.776	3
Regularly outsource expertise to train staff	7	7	10	1	0	25	3.8	0.760	4
Engage in a joint venture with companies that have experiences in several fields of work.	8	8	5	4	0	25	3.8	0.760	4

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree; 1: Strongly Disagree.

Ranking problem-solving first seems to be a reflection of the large number of difficulties and complexities encapsulated by construction projects in the Gaza Strip. This is in line with Wateridge's (1997) conclusions that the type of project and the working environment within which contractors operate are the main factors affecting skill selection in the construction industry. From the client's perspective, however, planning and goal-setting skills ranked first, followed closely by decision-making and problem-solving skills.

Contractors and clients appear to be in close agreement regarding the ranking of financial and project management skills. Interestingly, although communication skills were ranked first according to Odusami (2002) and Gushgari et al., (1997), they were ranked 12th and 10th by contractors and clients, respectively. This does not mean that project stakeholders should not focus their attention and efforts on strengthening this particular skill, as it plays a major role in driving project success. Rather, effective communication skill should become part of a routine set of skills that managers are assumed to possess.

Finally, contractors ranked the ability to work under pressure last of the 21 skills. The reason for this result could be the ever-complex political and social situations that most companies in the Gaza Strip face on a daily basis. These include tremendous external forces and dramatic local changes and stresses. Once again, the computed correlation coefficient (rho) value was 0.732, reflecting a strong agreement between contractors and clients. These results represent the importance of such skills to each party and perhaps also how they in turn affect the progress of their careers.

Project Information Management Approaches

Table 5 shows the contractors' evaluations of the effectiveness of various approaches used in managing project information and knowledge, from most to least effective. The results reveal that face-to-face meetings are the most effective technique used to obtain and acquire project information. This technique was ranked first, highlighting that conventional tools are still the best and fastest in obtaining and transferring information. In the context of acquiring project information, the use of periodic 'brainstorming' sessions as well as reports and documents were ranked second and third in terms of effectiveness, respectively. These approaches were followed by communication via phone and e-mail. Egbu and Botterill's (2002) findings showed that frequently used and conventional communication techniques are preferred because they provide simple and familiar means

Table 3. Rankings of Skills Important to Contractors

Type of Skills	Frequency of response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Decision-Making	21	13	0	0	0	34	4.618	0.924	1
Problem-Solving	23	9	2	0	0	34	4.618	0.924	2
Financial Management	21	10	2	1	0	34	4.5	0.900	3
Project Management	21	8	4	1	0	34	4.441	0.888	4
Administration	17	12	5	0	0	34	4.353	0.871	5
Risk Taking	15	15	4	0	0	34	4.324	0.865	6
Organisational	18	8	8	0	0	34	4.294	0.859	7
Creativity	17	9	8	0	0	34	4.265	0.853	8
Planning and Goal-Setting	17	9	7	1	0	34	4.235	0.847	9
Delegation	14	14	6	0	0	34	4.235	0.847	9
Flexibility	11	20	3	0	0	34	4.235	0.847	9
Communication	16	9	9	0	0	34	4.206	0.841	12
Negotiation	14	13	7	0	0	34	4.206	0.841	12
Attitude	13	13	8	0	0	34	4.147	0.829	14
Knowledge Management	15	9	10	0	0	34	4.147	0.829	14
Quality Management	11	17	6	0	0	34	4.147	0.829	14
Leadership and Motivation	10	17	7	0	0	34	4.088	0.818	17
Time Management	11	12	10	1	0	34	3.971	0.794	18
Personal Adaptability	9	16	7	2	0	34	3.941	0.788	19
Listening	8	13	13	0	0	34	3.853	0.771	20
Working under Pressure	9	11	10	4	0	34	3.735	0.747	21

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree; and 1: Strongly Disagree.

Table 4. Rankings of Skills Important to Clients

Type of Skills	Frequency of Response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Planning and Goal-Setting	18	6	1	0	0	25	4.68	0.936	1
Decision-Making	15	9	1	0	0	25	4.56	0.912	2
Problem-Solving	14	8	3	0	0	25	4.44	0.888	3
Project Management	13	10	2	0	0	25	4.44	0.888	3
Financial Management	13	9	3	0	0	25	4.4	0.880	5
Attitude	13	9	3	0	0	25	4.4	0.880	5
Administration	11	12	2	0	0	25	4.36	0.872	7
Organisational	12	10	3	0	0	25	4.36	0.872	7
Creativity	11	12	2	0	0	25	4.36	0.872	7
Communication	11	10	4	0	0	25	4.28	0.856	10
Negotiation	11	11	2	1	0	25	4.28	0.856	10
Risk Taking	8	14	3	0	0	25	4.2	0.840	12
Leadership and Motivation	9	12	4	0	0	25	4.2	0.840	12
Quality Management	9	11	5	0	0	25	4.16	0.832	14
Delegation	10	9	5	1	0	25	4.12	0.824	15
Time Management	10	9	5	1	0	25	4.12	0.824	15
Listening	7	14	3	1	0	25	4.08	0.816	17
Flexibility	9	9	6	1	0	25	4.04	0.808	18
Working under Pressure	8	10	7	0	0	25	4.04	0.808	18
Knowledge Management	8	9	7	1	0	25	3.96	0.792	20
Personal Adaptability	5	13	7	0	0	25	3.92	0.784	21

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree; and 1: Strongly Disagree

for interacting and sharing project information; and they are also useful in acquiring, developing, sharing and storing information within construction organisations.

The results of that study are very close to those obtained in this study. Similar to Table 5, Table 6 shows the clients' evaluations of the effectiveness of various techniques used in managing project information, from most to least effective. The computed correlation coefficient (rho) value was 0.875, reflecting a strong agreement between the responses of the two groups.

It is worth noting that contemporary and advanced tools such as the Internet and special types of networks were ranked last by the two groups of respondents. Based on the rapid development in the construction industry worldwide, it seems likely that the failure to adopt and integrate these advanced tools may adversely affect the future of the local construction industry in Gaza. Accordingly, integrating such tools in managing project information will be worth the extra time and effort spent on learning how to use them. Tangible benefits resulting from their use, for example, on a large-sized project should be showcased as an example for the rest of the local industry.

Table 5. Contractors' Rankings of the Approaches Used in Acquiring Project Information

Approach	Frequency of Response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Face-to-face meetings	23	6	3	2	0	34	4.471	0.894	1
Regular brainstorming sessions	19	9	5	1	0	34	4.353	0.871	2
Reports and documents	15	15	3	1	0	34	4.294	0.859	3
Telephone communication	14	15	4	1	0	34	4.235	0.847	4
Internet	16	8	9	1	0	34	4.147	0.829	5
Mobile phone	14	13	5	2	0	34	4.147	0.829	5
Computer networks	5	12	8	8	1	34	3.353	0.671	7

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree and 1: Strongly Disagree.

Table 6. Clients' Rankings of the Approaches Used in Acquiring Project Information

Approach	Frequency of Response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Reports and documents	14	10	1	0	0	25	4.52	0.904	1
Face-to-face meetings	8	13	4	0	0	25	4.16	0.832	2
Regular brainstorming sessions	8	11	5	1	0	25	4.04	0.808	3
Telephone communication	6	13	6	0	0	25	4	0.800	4
Internet	8	10	5	2	0	25	3.96	0.792	5
Mobile phone	5	9	8	2	1	25	3.6	0.720	6
Computer networks	3	6	9	6	1	25	3.16	0.632	7

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree; and 1: Strongly Disagree.

Factors Affecting the Success of the Training Process

Table 7 shows contractors' rankings of factors affecting training processes. These results show that the responding contractors were satisfied with staff willingness and tendency to improve their capabilities and skills; moreover, they viewed this willingness as the most important factor affecting the training process and its success. This factor was ranked first with a relative importance index of 0.876 and a mean score of 4.382.

The availability of funds was ranked second with a relative importance index of 0.853 and a mean score of 4.265. This result is close to that reported by Muya et al., (2003). Project size and characteristics was ranked third, with a relative importance index of 0.835 and a mean score of 4.176. Political, economic, and security/closure situations were ranked fourth, with a relative importance index of 0.829 and a mean score of 4.147. This factor reflects the instability of the political situation in Palestine in general, and the Gaza Strip in particular. Contractors appear to doubt the effectiveness of local professional institutions to provide training courses, as this factor was ranked last.

Table 8 shows clients' rankings of factors affecting training processes. The results demonstrate a ranking that is different from that presented in Table 7. Clients ranked staff

Table 7. Contractors' Rankings of Factors Affecting Training Processes

Factor	Frequency of Response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Staff willingness and tendency to improve their skills	14	19	1	0	0	34	4.382	0.876	1
Availability of funds	13	17	4	0	0	34	4.265	0.853	2
Project size and characteristics	14	14	4	2	0	34	4.176	0.835	3
Political, economic, and security/closure situations	19	6	5	3	1	34	4.147	0.829	4
Strategic planning for continuous improvement	14	11	7	2	0	34	4.088	0.818	5
Motivating staff to attend training	9	17	7	1	0	34	4	0.800	6
Satisfaction with training benefits	13	10	8	3	0	34	3.971	0.794	7
Strength or weakness of local training approaches	8	14	11	1	0	34	3.853	0.771	8
Existence of local professional institutions to provide training courses	10	12	9	2	1	34	3.824	0.765	9

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree; and 1: Strongly Disagree.

Table 8. Clients' Rankings of Factors Affecting Training Processes

Factor	Frequency of Response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Staff willingness and tendency to improve their skills	11	12	2	0	0	25	4.360	0.872	1
Satisfaction with training benefits	10	12	3	0	0	25	4.280	0.856	2
Strategic planning for continuous improvement	9	14	1	1	0	25	4.240	0.848	3
Motivating staff to attend training	8	13	4	0	0	25	4.160	0.832	4
Availability of funds	7	14	4	0	0	25	4.120	0.824	5
Project size and characteristics	9	9	7	0	0	25	4.080	0.816	6
Existence of local professional institutions to provide training courses	8	11	5	1	0	25	4.040	0.808	7
Strength or weakness of local training approaches	8	11	5	1	0	25	4.040	0.808	7
Political, economic, and security/closure situations	10	6	5	4	0	25	3.880	0.776	9

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree; and 1: Strongly Disagree.

willingness and tendency to improve their capabilities first with a relative importance index of 0.872 and a mean score of 4.360. This factor was the only factor that was in agreement with contractors' perspectives. This result suggests that the full benefits of an adopted training approach will not be realised unless staff members are willing to participate and are convinced of the potential benefits. Satisfaction with training benefits was ranked second with a relative importance index of 0.856 and a mean score of 4.280. Strategic planning for continuous improvement was ranked third, with a relative importance index of 0.848 and a mean score of 4.240. This demonstrates that clients are perhaps more interested than contractors in long-term business improvements. This may be attributable to local clients having a better organisational structure than contractors. Moreover, some funding agencies enforce a strict requirement that firms receiving funding train and improve their staff capabilities. Accordingly, there is greater motivation for clients to push for long-term business improvements. The fourth-ranked factor was the encouragement of staff to attend training, that is, the motivational approach.

The Spearman's correlation coefficient (rho) was 0.142, reflecting a very weak agreement between the two groups. The reasons for such a weak agreement may be attributed to these groups' different organisational cultures and the different sets of strategies each group adopts to provide and sustain staff training.

Factors Affecting Skill Improvement

Table 9 shows the rankings of the factors affecting skills improvement according to contractors. The results demonstrate that the project characteristics and level of complexity factor is the most important in affecting skill improvement. This factor was ranked first with a relative importance index of 0.900 and a mean score of 4.500. It is worth highlighting that this particular factor was also ranked relatively high by contractors with regard to training processes, as shown in Table 7.

Staff willingness and tendency to improve their skills was ranked second position with a relative importance index of 0.894 and a mean score of 4.470. Adopting and applying the total quality management (TQM) approach was ranked third with a relative importance index of 0.835 and a mean score of 4.176. The philosophy behind this particular factor revolves around the concept of continuous improvement and requires staff awareness of what is needed to enable and facilitate such continuous improvement, which naturally requires continuous skills improvement.

Table 9. Contractors' Rankings of Factors Affecting Skills Improvement

Factor	Frequency of Response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Project characteristics and level of complexity	20	12	1	1	0	34	4.5	30.900	1
Staff willingness and tendency to improve their skills	19	12	3	0	0	34	4.471	0.894	2
Adopting and applying the TQM approach	15	10	9	0	0	34	4.176	0.835	3
Applying and using IT in projects	14	9	10	1	0	34	4.059	0.812	4
Polarising an expertise from a large international and local companies	13	10	7	3	1	34	3.912	0.782	5

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree; and 1: Strongly Disagree.

Table 10 shows the rankings of the same factors affecting skill improvement from the clients' perspective. The results show that staff willingness and tendency to improve their skills was ranked first with a relative importance index of 0.912 and a mean score of 4.560. Project characteristics and level of complexity was ranked second with a relative importance index of 0.888 and a mean score of 4.440. Adopting and applying the TQM approach was ranked third with a relative importance index of 0.848 and a mean score of 4.240.

The above results were compatible with the contractors' perspective, indicating that the TQM approach is an efficient and effective tool to improve staff skills directly and indirectly. This result is close to that emphasised by Chileshe and Watson (2000), who demonstrated a direct correlation between the level of TQM adoption within construction projects and organisational performance. The Spearman's rank correlation coefficient (rho) value was 0.80, reflecting strong agreement between the two groups.

Table 10. Clients' Rankings of Factors Affecting Skills Improvement

Factor	Frequency of Response					Total	Mean Score	R.I.I	Rank
	5	4	3	2	1				
Staff willingness and tendency to improve their skills	16	7	2	0	0	25	4.56	0.912	1
Projects characteristics and level of complexity	12	12	1	0	0	25	4.44	0.888	2
Adopting and applying the TQM approach	11	10	3	1	0	25	4.24	0.848	3
Polarising expertise from a large international and local companies	11	9	4	1	0	25	4.2	0.840	4
Applying and using IT in projects	8	12	3	1	1	25	4	0.800	5

5: Strongly Agree; 4: Agree; 3: Neutral; 2: Disagree; and 1: Strongly Disagree.

CONCLUSION AND RECOMMENDATIONS

The findings of this study indicate that encouraging mentoring by mixing experienced staff with newly-graduated staff is the most preferred approach for improving staff capabilities according to contractors and clients alike. Decision-making and problem-solving skills were highly ranked by contractors. Problem-solving skills were ranked first by contractors and third by clients. Planning and goal-setting skills and decision-making skills were ranked first and second, respectively, by clients.

Face-to-face meetings were ranked by both contractors and clients as the most preferred approach for obtaining and exchanging project information. This demonstrates that conventional tools of communication are still the most commonly used tools in obtaining and transferring project information and knowledge. Advanced tools and/or approaches, such as the Internet and special types of customer networks, were ranked low by both contractors and clients. Yet, based on the current literature, the use of IT techniques is a crucial factor for the success of construction companies and/or construction in general, and the failure to adopt and integrate such advanced tools may affect the future of construction in the Gaza Strip. Accordingly, although it may require time and effort, integrating such tools into construction projects should prove useful in the long-term.

The willingness of staff to improve their capabilities and skills by attending and participating in training courses was ranked first by both groups. Thus, such willingness should be very beneficial. A very weak level of agreement between contractors and clients was observed regarding this factor.

The importance place on this factor by clients relative to contractors may relate to different strategies respectively adopted by each group to apply and sustain the training process, the sensitivity of the contractors as opposed to clients regarding local markets changes and demands, the different organisational culture for the contractors versus clients, and the direct role of clients in removing any vagueness and/or queries in projects.

Project characteristics and level of complexity, staff willingness and tendency to improve skills and adopting and applying the TQM approach were ranked by contractors and clients as the top three factors affecting skill improvement. The agreement level over these items was relatively high. Such results imply an appreciation of the importance of a TQM approach by both groups, which is a crucial step to promote and enhance the building sector's productivity in the Gaza Strip.

We recommend that clients and contractors be encouraged to facilitate mentoring by mixing experienced staff with newly-graduated staff; such approach will be the best and most efficient one in developing qualified and sustainable staff. Strengthening communication skills is also recommended, as the results suggested a lack of interest on the part of both clients and contractors in the development of such skills. The organisations and governmental ministries involved in construction projects should support and promote problem-solving skills. Such skills must be continuously developed and improved because of fast-paced changes and subsequent new problems in the construction industry. Periodic seminars and awareness campaigns are recommended to highlight the latest and most crucial problems that are occurring in the construction projects within the Gaza Strip. Moreover, providing the contractors and clients with optimal solutions for these problems will prove efficient and useful for the improvement and development of the construction industry.

We recommend creating suitable conditions and environments for both clients and contractors to promote their engagement in training courses, since this factor was ranked first position by both groups as an important factor affecting the success of training processes. We recommend that clients and contractors adopt the TQM approach, since such an approach facilitates success in the construction industry. We also recommend that contractors and clients recognise the benefits of IT and implement changes according to their specific organisational requirements. Such implementation must be accompanied by sufficient training and education to ensure that IT is used effectively in addition to more conventional communication tools.

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