



THE EFFECT OF IMPLEMENTING UNQUALIFIED STAFF IN CONSTRUCTION PROJECTS. METHODS,
CRITERIA FOR THE SELECTION OF THE APPROPRIATE STAFF IN THE MENTIONED PROJECTS

By

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- ❖ To my parents and sister who encourage me to complete this thesis
- ❖ To my thesis advisor, Kostantinos Kontesis, without whom this Thesis probably would still be just jumbled thoughts in my head.

Curriculum Vitae

Vasiliki Aggelousi

Vasiliki Aggelousi has obtained a degree of civil engineer of the University of Patras in Greece. She has been working in a construction company, as a civil engineer, for almost a year. She was occupied with architectural and technical reports. She has also worked for a year in the City Planning as an engineer and she was occupied with technical issues. The organization deals with construction projects and some technical issues for which qualified persons are required. Vasiliki decided that she needed a theoretical background in project management to complement her experience as regards the integration of projects.

Today Vasiliki works for a technical public servant which undertakes construction projects. She lives with her parents and her younger sister in the centre of Athens.

Abstract

This thesis is dedicated to the impact of human resources in projects, as it applies to construction companies. Human resource management mission is to bring people into the organization and helping them perform their work. The function of Human Resource Management that is being further analyzed in this thesis is staffing. Staffing is composed of recruiting and selection of staff. Firstly, construction companies gather the possible candidates with suitable methods, being analyzed in this research. Then, by using relative selection processes they conclude to the hiring of the new employees.

Afterwards, the effect of use of unqualified and inexperienced staff in construction projects is investigated in the current thesis. The abovementioned derived there from impacts on companies and on the projects themselves were the major reason for the author's research, review and proposal of appropriate selection methods for staff. Finally, recommendations for further research in this area of study are mentioned at the end of this thesis.

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1.0 CHAPTER 1- INTRODUCTION

1.1 Nature of the Study

The nature of the study is to be analyzed suitable methods and ways, for construction companies in order to appoint qualified persons. Staffing, which is concerned with the recruitment, selection, placement, evaluation and promotion of individuals, lies at the heart of how businesses procure human resources (HR) in an organization (Peters et al., 2000).

The thesis will also consider and study the impact for using unqualified persons in construction projects.

1.2 Needs Assessment

Stakeholders for this thesis may be many construction companies or other services which cooperate with construction or other technical companies for the accomplishment of relevant projects.

This thesis will provide stakeholders with a view of

- The degree to which an unqualified staff can affect the implementation of the project
- Methods, tools for the selection of qualified staff

1.3 Purpose of the Study

The purpose of this study is to consider the impact of using unqualified staff in construction projects and finds methods for the selection of qualified people.

The staffing practices consisted of some major areas, namely, the selection criteria and selection methods in use, the validation of staffing practices and the involvement of HR managers and line managers in staffing.

For that, in this thesis there will be mentioned recruiting methods which are considered as the initial step, as by them the possible candidates are gathered and then there will be analyzed the selection methods in order the appropriate staff to be appointed.

Moreover, this paper can be used as a guide for companies in order to organize their personnel.

1.4 Relation to the Program of Study

PM 501, Introduction to Project Management introduced many concepts and techniques useful in Project Management. Some topics included in this course are organizational structure, how to plan, objectives and goals. The course also includes consideration of team success, project organization and characteristics of effective teams.

PM 506, Managing Projects with People and Teams examine various strategies and their effectiveness for acquiring, placing, maintaining, and training for people assigned to a project. The course provided methods in how to design a specific project team for a project including team member selection.

The handbook format is written in order to offer practical guidance to supervisors of construction projects, who are interested in implementing staffing practices.

However, it is our hope that this information will be of interest to many constructions companies in order to hire the appropriate staff.

1.5 Definition of terms

Human Resource Management- A variety of activities within an organization that focuses on recruitment, management, and the direction of the people in the organization

Recruiting- The process of finding possible candidates for a job position.

Selection-The process with whom the selection and appoint of new employees is taken place

2.0 CHAPTER 2- PROBLEM STATEMENT

2.1 Problem Statement

Big construction projects require many different types of contributors, often over extended periods of time. The success of these construction projects is based on the members of the project team. Failing to select and appoint qualified individuals to form the project team can be detrimental to the successful execution of the project.

The effect of the use of unqualified staff in construction projects was the major reason which poses me to occupy with the selection of appropriate staff.

Due to unqualified staff a project can be a failure or can be delayed, and it may also have a large cost to the company. Moreover, the company will lose its reputation and can lose future projects or possible clients.

As the selection of staff affects the performance of the project, in this thesis will be analyzed appropriate selection criteria for the personnel of construction companies. Furthermore, there will be further analysis as regards the methods of selection of the mentioned personnel.

The staffing process forms " ... a system of policies, procedures, structures, activities and rewards that govern the way people are hired" (Winston & Creamer, 1997)

2.2 Rationale

Many construction projects, especially public ones, fail to achieve success in budget, time and cost. It is of major importance for a company to complete their projects successfully, fulfilling the above three parameters.

The well-organized execution of projects reflects well on the good name of the company. Taking into account the fact that serious competition between companies is a reality, the

construction companies must execute their projects successfully in order to achieve and maintain a good reputation in the construction market.

One factor of major importance that can ensure companies a high standard of implementation of projects is the selection of well-qualified persons. Many construction companies appoint staff without the appropriate experience and technical skills to deal with such a demanding construction project. This tactic can benefit the company financially by saving the extra money out of unqualified personnel. On the other hand, it can prove harmful as inexperienced personnel can make mistakes that will result in compromising the construction's deliverables. This factor may not only cause financial loss but also a bad reputation for the company, and may have a bad impact on the safe execution of the project.

2.3 Hypothesis

The objectives of this thesis are to reveal strategies and methods to help construction companies to appoint the appropriate team members for each project. Regarding the characteristics of the construction projects, appropriate methods will be presented in order the successful completion of the project.

3.0 CHAPTER 3- REVIEW OF LITERATURE

3.1 Review of Literature

The summary of research that was completed for this study consisted of reading journal articles, a variety of books, and carrying out extensive research through the Internet. The material presented here represents the results of this research. Several of the articles and references studied, indicate the function of Human Resource Management.

The Human Resources Management (HRM) function includes a variety of activities. Some of the processes of Human Resources Management are the selection of qualified personnel in organizations, what staffing is needed for each organization, recruiting and training the best employees, and ensuring that personnel and management practices conform to various regulations. Human Resource Management searches for mobile and skilled employees who can offer to the projects.

For that reason much of the recent literature on human resource management (HRM) has emphasised the importance of staffing (Plumbley, 1985; Smith and Robertson, 1993; Tanova, 2003; Terpstra, 1996; Williamson, 2000). For instance, Plumbley (1985) suggests that "the survival of an organization usually depends upon the calibre of the workforce," and argues that "the costs of ineffectual commercial viability can often be attributed to decades of ineffective staffing practices". Even in today's technically advanced business environment, the human factor is instrumental to the success of an organization. Staffing represents one of the key factors that influence the success of an organization (Judge and Ferris, 1994; Tanova, 2003; Williamson, 2000).

Human Resource Management attempts to search and secure the "best" possible candidates. Employee training and employee development are Human Resource Management's activities

after recruiting and selection. Human Resource management basic functions are Staffing, Training and Development, Motivation and Maintenance (Decenzo, 2005).

The Integrated Model of Staffing Practices according the Winston and Creamer (1997) model encompasses the following components:

- Recruitment and Selection
- Orientation to Position
- Supervision
- Staff Development
- Performance Appraisal
- Separation

3.2 Effects of using unqualified staff

Recruiting and selecting suitable employees is one of the most time consuming and expensive activities carried out by managers in today's organisations. A 1992 survey of managerial activities found "recruitment was by far the most substantial preoccupation of designated personnel managers and one of the three most time consuming for all others "(Millward, et al., 1992, p. 41.) Furthermore, its impact on the organisation can be substantial, as inaccurate selection decisions may prove costly, not only in terms of financial investment, "but also in loss of productivity, disruption of service and depressed morale" (Ramsay, 1994, p.14).

In large construction projects the wrong selection of staff which means the use of unqualified personnel in projects, can cause a major impact. The use of unqualified personnel can have a bad impact in cost time and quality of the project. According to the Vietnam Economic Times, "up to 78% of the country's construction workers are not fully trained". Successful project completion can depend to a large extent upon members being skilled and well trained.

When contractors use unskilled and inexperienced workers the result is low quality and high cost to the company. Prevailing wage laws are designed to force contractors to use only qualified workers. The Inspector General of the U.S. Department of Housing and Urban Development (HUD) discovered a “direct correlation between labor law violations and poor quality construction” in 17 cites that his office investigated. This led him to conclude:

Poor workmanship quality, in our opinion, results from the use of inexperienced or unskilled workers and shortcut construction methods. Roofing shortcuts result in leaks and costly roof and ceiling repairs. While shortcuts in painting may not be as serious, it does require future maintenance expense by requiring repainting sooner than anticipated. . . . Poor quality work led to excessive maintenance costs and increased risk of defaults. . . this systematic cheating costs the public treasury hundreds of millions of dollars.

Researchers at the University of Utah also discovered that "bad contractors (which may use unqualified personnel) hurt both workers and taxpayers". They discovered that the effect on workers includes:

- Injuries increased by 15%.
- Wages in the construction industry fell by 22%.
- Construction training declined by 40%. (The replacement of skilled with unskilled

workers is perhaps the most important reason for the increase in injuries.)

Moreover the effect on Budget includes:

- Cost overruns on construction projects increased from 2.0% to 7.3% of accepted bids.
- Final project costs as a percentage of the state engineer’s original estimate increased

by 2%. Two percent of the \$3.5 billion worth of construction projects that New York City currently has amounts to \$70 million.

Some other impacts that cause the use of unqualified staff in construction projects are mentioned below.

Financial loss for the company, as major corporations estimate the costs of mis-hires to be from between two to four times the person's salary (Smart,1989). Some companies consider the cost even greater. In most cases the unqualified persons was fired one year after being hired, and was at least 50 per cent productive during that year (Smart 1989).

Cost overrun, as unqualified persons do not attain to complete the project within time and cost. Unqualified staff can cause design problems included inaccurate or missing design specifications of needed construction material and inaccurate quantity calculations or construction directions. Design has been described as the most critical period of the project life cycle. (Burgess, R.A and White,G). Cost overruns may add value to projects by producing a better product, or may add no value and represent wasted money.

Project delay is considered another impact, due to project staff scarcity of certain skills. It is very common for a project to finish later than scheduled whether due to adverse weather, variations, subcontractor failure, unqualified personnel or defective materials. The cost effect of delay can be significant. Moreover, most technical projects rely on at least some special expertise that they share with other projects, such as system architects needed at the start, testing personnel needed at the end, and other specialists needed throughout the project. If an expert happens to be free when a project is ready for him or her to start work, there is no problem. If the expert has activities for five other projects queued up already when your project activity needs attention, your activity will enter the queue and any following work will slip while the queued activity waits. Queuing analysis is well understood, and it is used to optimize manufacturing, engineering, system design, computer networks, and many other business systems. Any system subject to queues requires some excess capacity to maximize throughput. Optimizing project resources based only on cost drives out any spare capacity and causes project delay.

Bad quality of the project is one more impact caused by using unqualified staff. The quality of construction is central to a project. In fact, personnel with no having the appropriate educational and technical skills can not complete the project in the expected quality level. According to a Current Population Survey data pooled for three years 2000/2002, using as sample New York City's Construction Industry shown that the level of traditional school-based education of construction workers is not high. Fewer than 10 percent of construction workers have a college degree and those who have completed some colleges covered the 22 percentage of the workers. The rest percentage of construction workers is completed by employees with high school or less than high school education. The results are depicted in table 1

Table 1

Educational Attainment in New York City's Construction Industry

<u>Education Level</u>	<u>Percent</u>
Less Than High School	28.3
High School	40.6
Some College (inc. vocational training)	22.6
College & Higher	8.4
Total	100.0

Note: Non-trade related occupations, e.g., support and administrative positions, were excluded from analysis.

Source: Current Population Survey data pooled for three years: 2000/2002.

All these impacts mentioned above, may conclude to the project fails. It is argued that mistakes are caused by the fact that organizations generally give little or no attempt to validate staffing practices (Flirkowski and Schuler, 1994, Ifill and Moreland, 1999).

3.3 Selection criteria

Recruitment and selection of staff should be a very high priority in most of construction companies. Recruitment and selection should include procedures directed to analyze the need and purpose of a position, the culture of the company, and ultimately to select and hire the person that best fits the position. Recruitment and selection policy should, then be directed toward the following objectives:

- Hire the right person.
- Conduct a wide and extensive search of the potential position candidates.
- Recruit staff members who are compatible with the college or university environment and culture.
- Hire individuals with the appropriate technical skills
- Place individuals in positions with responsibilities that will enhance their personal development.

Hiring is the process of finding and attracting job applicants who have the skills, abilities, and other personal characteristics that each organizations seeking. (Cauvier, 1993). Each construction company focused on some selection criteria in order to select the appropriate staff for a position. For every company some particular qualities and attributes are considered to be important in recruitment and selection. In a survey questionnaire that was held during the preparation of this thesis, it was emerged the following results which are showed in Figure 1.

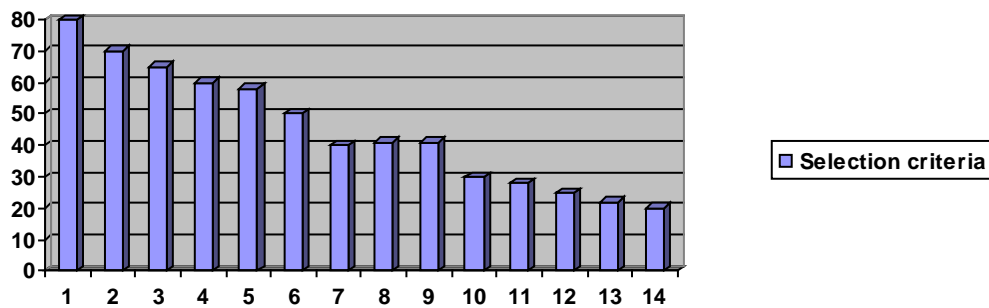


Figure 1

SELECTION CRITERIA

- 1.Educational qualifications
- 2.Previous work experience
- 3.Personal qualifications
- 4.Technical skills

5. Personality
6. Communication skills
7. Age
8. Leadership
9. Gender
10. Team working
11. Analytical skills
12. Self confidence
13. Self motivate
14. Organizational ability

From figure 1 it is obvious that the selection criteria of major importance are the educational qualifications, previous work experience, professional qualifications and technical skills. In addition to that, respondents mentioned personality, self-confidence, team work, age and gender. Companies emphasized educational qualifications which placed first across all categories. Educational qualifications refer to academic, vocational, or technical studies and training acknowledged through a credential or other official documentation from, or accepted by, a recognized educational institution. Experience which is placed second across the categories refers to the past practice of activities that provided an opportunity for the acquisition of knowledge and the development of skills/abilities relevant to the work to be performed in a job.

Evidence suggests that effective communication, leadership, motivation, analytical skills, and organizational ability were among the important qualities that were sought during the selection process (Ahmad and Schroeder, 2002; Stewart and Knowles, 2000; Zhu and Dowling, 2002). Evidence also suggests that organizations are paying increasing interest to innovative and multi-experienced personnel (Heraty and Morley, 1998). However, the weighting given to the desired qualities could vary by the nature of the job to be performed. Though it is advantageous to have selection criteria for jobs to be documented, research evidence reveals that the majority of organizations do not maintain well-documented selection criteria (Stewart and Knowles,

2000). When organizations do not have selection criteria documented, they have to rely on the interviewer retrieving information purely from memory without making reference to documentation during selection interviews (Stewart and Knowles, 2000).

3.4 Recruiting sources

Staffing function is about activities in HRM concerned with seeking and hiring qualified employees. Recruiting is considered as the initial step in the staffing function. The goal of recruiting is to give enough information about the job so as to attract a large number of qualified applicants and simultaneously discourage the unqualified from applying.

Before the selection of staff, recruiting is the basic process of discovering potential candidates for actual organizational vacancies. An effective recruiting process requires a significant pool of candidates to choose from. The more applications received, the better the recruiter's chances for finding an individual who is best suited to the job requirements. The basic sources of recruiting, used from companies are internal search, employee Referrals and Recommendations, external Search and Recruiting Alternatives (Decenzo 2005). More specific construction companies follow the further down mentioned recruiting sources in order to attract new employees.

Assess the Need For and Establish the Purpose of the Position

The company's goals and mission statement should be clearly defined and understood prior to conducting a search for qualified individuals. It should also emphasize the people oriented nature of the organization.

Prepare the Position Description-Job analysis

A Job analysis is the process of collecting and recording the specific characteristics of a position (Cauvier, 1993). The Position description should first establish a hiring profile,

consistent with the idea of choosing the person who would best fit the position. It is imperative that a position description clearly defines the company's goals and that employees are selected based on personality and chemistry that fit the defined services and goals. The job description also should make clear to other members of the unit in which the work is to be performed, what is expected of the new member.

At a minimum a position description should include:

- Position title
- Credentials or position specifications
- Administrative location of the position
- Physical and working conditions
- Goals for the position
- Work activities
- Procedures and conditions of employment
- Institutional and divisional performance expectations

Prepare the Position Announcement

This crucial step informs all who are interested in the position precisely what the search committee is looking for in clear and unambiguous language. The announcement should include such information as:

- Title.
- Location and demographics of the institution
- Supervisor.
- Mission of institution and division

- Contributions expected by the staff member toward the accomplishment of these missions

- Goals and work requirements of the position
- Minimum education.
- Experience and knowledge requirements.
- Conditions of employment.
- Date for beginning of review process
- Individual and office to contact for further information

If stated clearly, the position announcement can unencumbered the overall search process by encouraging self-elimination of candidates who clearly do not fit the announced requirements.

Internal search

Many construction companies hire their new employees through an internal search of their current employees who have bid for the job. These companies have a policy to fill the positions from inside before going outside. (Cauvier, 1993). The internal search has the following advantages.

- It is good public relations
- It builds morale
- It encourages good individuals who are ambitious
- It improves the probability of a good selection
- It is less costly than going outside to recruit
- Those chosen internally already know the organization

Employ Referrals and Recommendations

An employee referral is a recommendation from a current employee regarding a job applicant. An employee referral may receive more accurate information about the potential jobs. The recommender gives the applicant more realistic information about the job, which reduces the unrealistic expectations. Employee referrals tend to be more acceptable applicants, and more likely to accept an offer.

The external search may include the following processes.

Advertisement

One of the most popular and generally used methods used by organizations, included construction companies in order to inform the public about the available positions is advertisement.

Unsolicited Applicants

Unsolicited applications constitute a source of prospective applicants. Even a company has no current openings, the unsolicited applications can be kept on file for later use This is a tactic which is followed in many construction companies in order to attract staff.

Cyberspace Recruiting

Many construction companies used the Internet in order to recruit new employees by adding a recruitment section to their web site. Furthermore, there is a specific site which appeals to all kind of engineers and in which every construction company even small or large can be advertised and ask new to appoint new staff.

Employee Leasing

When an organization needs specific employee skills, it contracts with a leasing firm to provide trained employees. Whereas temporary employees come into an organization for a

specific short-term project, leased employees typically remain with an organization for longer times. Leased employees are also well trained.

Independent Contractors

Another means of recruiting is the use of independent contractors. Companies may hire independent contractors to do specific work at allocation on or off the company's premises. Independent contractor arrangements benefit both the organization and the individual.

3.5 Selection processes

Once the recruitment process is over companies can continue to the next phase and more difficult the selection process. Successful selection activities entail a lot of careful planning and careful thought. The selection process is composed of steps, each of which provides decision makers with information that will help them predict whether an applicant will be a successful job performer.

There are two basic selection processes the discrete selection process and the comprehensive approach.

Selection activities follow a standard pattern, beginning with an initial screening interview and concluding with the final employment decision. The selection process typically consists of eight steps. (Decenzo, chapter 6)

1. Initial screening interview

The initial screening is consists of a two-step procedure screening inquires and screening interviews.

If the company's recruiting effort has been successful, the company will have a pool of potential applicants. Based on job description and job specification some of these applicants can be eliminated.

The screening interview is also an excellent opportunity for Human Resource Management to describe the offered job in details, so as the candidates can consider if they are really interested about applying.

2. Completing the application form

After the initial screening is completed, applicants are ready to complete the organization's application form. The application form gives a job-performance related synopsis of applicants' life, skills, and accomplishments.

3. Employment tests

Some companies put the candidates to perform some tests in order to see if they are capable enough for the position. These tests can serve as selection tools. They can measure intellect, spatial ability, skills, motor ability or personality traits. Some types of tests can be Performance Simulation Tests, Work Sampling, and Testing in a Global Arena.

4. Comprehensive interview

Applicants who pass the three mentioned steps receive a comprehensive interview. Human Resource Management interviewers interviewed the possible candidates. By comprehensive interview, interviewers obtain in-depth information about a candidate.

Moreover, comprehensive interview is designed to probe areas not easily addressed by the application form or tests. It has been suggested that "interviews are generally used as a forum where all the information about a shortlisted candidate is considered and evaluated....In this way, employers might see the "interview" as a proxy for the whole selection process"(IRS Rec. and Dev. Report 17, 1991, p. 3).

5. Background investigation

The next step in the selection process is to undertake a background investigation of applicants who appear to offer potential as employees. Background investigations, are intended to verify that information on the application forms correct and accurate. This can be achieved by contacting former employers to confirm the candidates' work record and to obtain their appraisal of their performance.

6. Conditional job offer

If a job applicant has passed each step of the selection process, a conditional job offer is made. A conditional job offer is a tentative job offer that becomes permanent after certain conditions are met.

7. Medical or physical examination

The last step in the selection process may consist of having the applicant take a medical/physical examination. A medical examination determines the applicant's physical fitness for essential job performance.

8. Permanent job offer

Individuals who perform successfully in all the preceding steps are considered eligible to receive the employment offer.

All the above mentioned steps are described the discrete selection process. This approach however, may not be the most effective selection procedure for every job. In many cases it may be advantageous to do comprehensive rather than discrete selection. In comprehensive selection, all applicants complete every step of the selection process, and the final decision is based on a comprehensive evaluation of the results from all stages. Proper selection can minimize the costs of replacement and training, reduce legal challenges and result in a more productive workforce.

Most organisations use at least the following three methods of selection: application forms or curriculum vitae (Caplan & Schmidt, 1977; Beavin & Fryatt, 1988; Smith & Abrahamson, 1992); references and recommendations (Robertson & Makin, 1986; IMS, 1988); and unstructured interviews (Anderson & Shackleton, 1990; Beavin & Fryatt, 1988; IMS, 1988: 5; Smith & Abrahamson, 1992). In their unstructured form, however, these methods represent three of the least reliable and empirically valid techniques for predicting either job or training performance (Reilly & Chao, 1982; Levy-Leboyer, 1994; Rowe *et al.*, 1994; Shackleton & Newell, 1994).

There is some more evidence for the increased use of more formally developed methods including work samples, such as trade tests for skilled technical jobs. (Reilly & Chao, 1982; Landy, Shankster, & Kohler, 1994).

The results of a survey conducted by the Industrial Relations Services (IRS) in 1991 showed that assessment centres and psychometric testing were generally more prevalent in the service industries (finance, distribution and leisure) than in manufacturing. Within the manufacturing sector, engineering, and food, drink, and tobacco firms were more likely to use personality tests compared to the rest of the industry. The latter group were also more likely to use CVs over application forms.

Socializing, orienting, and developing employees, is a process that helps new employees adapt to their new organizations responsibilities. Also training is essential to create high skilled employees (Decenzo, 2005, chapter 7&8)

Before beginning any recruitment process, employers should understand that federal and state laws forbid discrimination against employees or candidates for employment because of race, gender, religious beliefs, ethnic origin, marital status, sexual preference, physical

disabilities, and age if over 40 years old. These anti-discrimination laws apply to all aspects of the employment process including: job descriptions, employment advertisements, interviews, job applications, salaries and benefits, promotions, and all decisions related to hiring and firing personnel. Employers should consult with competent legal counsel when developing recruitment programmes.

4.0 CHAPTER 4- METHODOLOGY

4.1 Methodology

This research is designed to examine the appropriate criteria that may have new hired employees in construction projects. After the depth reference of that criteria, there will follow a model for the selection of this staff.

In other words, what conclusions are suggested by books, articles and research from Internet regarding the mentioned thesis, and what tools can be used to make decisions regarding project selection, that support the aim of the hypothesis: project success.

The literature reveals that there is no one single recruitment and selection technique. They are depending on the situation and the approach is determined by the job requirements and by organizational environmental constraints. Finding the right employee is a continuing challenge and hence companies should plan the selection process well ahead of time.

When determining which selection method is most appropriate, it is necessary to consider the requirements of the job, through analysis of the job description and person specification, and what skills, experience and aptitudes are being sought. Some organisations make reference on the person specification as to how they will assess that requirement during the selection process, so that potential candidates are aware of the methods the organisation will use. Of course, as we have already mentioned more than one selection method may be appropriate for a particular job.

Construction projects are always unique and different in one way or another. Projects are unique in terms of project size, complexity, duration, building rate and type of projects.

There are some selection methods that can be used in every construction project regardless of its characteristics. Moreover, Johns (1993) suggests firms within a particular business sector such as construction companies may adopt similar personnel practices.

The most common used methods, according to the literature review used by construction companies are interviews which may be consisted of one, two or three stages, Curriculum vitae over application forms and personality tests. The result of this thesis is a process that can be followed by construction companies as to how to hire employees. Moreover, as a result of this thesis, is demonstrating a matrix (Appendix A) with the most common used selection processes used by construction companies.

In conjunction with the selection processes the applicants should fulfil some specific criteria. The identification of core skills and competences required in a wide variety of occupation, including the construction sector, has many advantages for the company. The construction companies regarding the projects that they are undertake and the kind of the job position, ask from the candidate employees to obtain some criteria such as experience, technical skills. This thesis tends to develop a structured list with the skills being required from construction companies.

The many characteristics of successful projects are complex and are not well documented. Information is usually assembled to document what went wrong with a project rather than to document the circumstances of success. The list of characteristics of successful projects is based on the collective experience of more than a dozen highly knowledgeable professionals with experience in large-scale projects.

5.0 CHAPTER 5-EXPECTATIONS

5.1 Expectations

It is expected this research, when it will be completed to consist a useful handbook for many construction companies as to how to select their new employees. It is expected this thesis to help construction companies to improve their selection process and to enrich them with all the appropriate criteria, skills and qualifications that new hired employees may have.

In order to confirm that the proposed selection process is reliable and fair, we should ensure that the method treats all candidates in a fair, equitable and non-discriminatory manner that selection committee members are competent and able to assess candidates fairly and objectively and that is able to provide all the information relevant to all of the required qualifications.

5.2 Results

This section of the research, intended to present the results of this study. First of all, it is depicted a selection process which can be used from construction companies in order to hire capable employees. The selection model is depicted in the following figure 2.

The flowchart depicts the stages which may follow a company in order to appoint suitable employees.

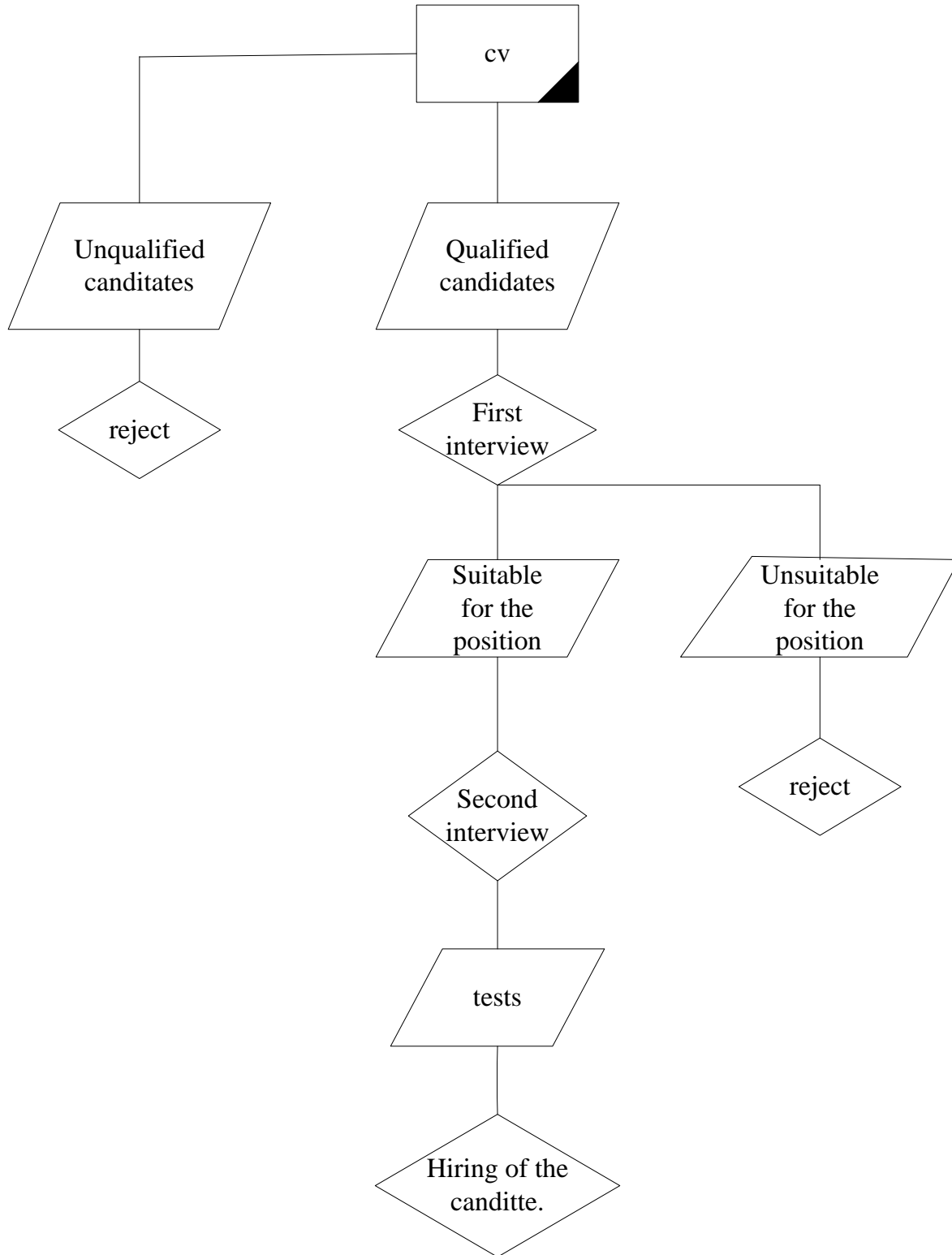


Figure 2

According a questionnaire survey that was held during the preparation of this thesis, among a number of construction companies in Greece it arose the following results, as regards the most common used selection methods by construction companies. The results are shown in Appendix A.

As it has already mentioned to the methodology section, the thesis intends to present a list with the qualifications, skills asked for construction companies in order to hire staff as the successful completion of a project depend directly on the competence, integrity, experience, and innovation of the various members of the project team. The list is presented below.

Selection Criteria

1.0 Education, Technical Knowledge:

- (1) An Associate Diploma in Civil Engineering or in engineering with the required license
- (2) Graduation from an accredited college or university with a bachelor's degree
in Engineering, Architecture, Landscape Architecture or Construction Management
- (3) Knowledge of Architectural and Engineering principles and practices used in
multi-discipline construction projects.
- (4) Knowledge of construction codes for small commercial architectural and
engineering projects.
- (5) Knowledge of engineering equipment design and development.
- (6) Be familiar with current construction techniques and methods
- (7) Advanced knowledge of the application of computer programs and their use
in engineering applications
- (8) Knowledge of technical drawing and specification writing for engineering
and architectural work.

- (9) Knowledge of automated (CAD) and manual techniques for the production of construction documents in support of a multi-disciplinary approach to project bid documents.

2.0 Skills, Abilities:

- (1) Skill in using computer systems and automated software as it applies in architectural and engineering design documents;
- (2) Skill in the application and use of GPS and GIS instrumentation;
- (3) Skill in survey methods and techniques;
- (4) Skill in engineering and architectural CAD drafting;
- (5) Ability to plan, organize, and coordinate processes, programs, and projects;
- (6) Ability to apply engineering concepts and to perform and review engineering drafting work;
- (7) Ability to develop complete construction drawings and specifications from project scope of work using current design standard, applicable codes, and state and local requirements;
- (8) Ability to implement computer software and hardware applications as they are used in engineering and architectural design and documentation.
- (9) Ability to develop and implement quality processes and procedures

3.0 Experience:

- (1) Past experience is required regarding the construction company and the requirements of the project. The past experience varies from one (1) to five (5) years in the similar position.

4.0 Personal Attributes

- (1) An ability to work with people of all ages and at all levels and with members of the community to produce positive outcomes,
- (2) Have strong interpersonal skills and be able to apply these skills to encourage effective performance,
- (3) Possess a well developed level of self awareness,
- (4) Demonstrate effective written and verbal communication skills and
- (5) Demonstrated ability to work as part of a team.
- (6) Flexibility, self motivation and the ability to perform successfully in remote and demanding situations

5.0 Licenses

- (1) For some positions a current drivers licence is required

6.0 CHAPTER 6- DISCUSSION, CONCLUSIONS, RECOMMENDATIONS

6.1 Discussion

Concerning the results of this thesis the most common selection processes are curriculum vitae cvs, interviews and tests.

Curriculum vitae provides companies with the biographical information relating to qualifications, skills, work experience or other life history of the person interested for the position so as companies to separate the suitable candidates.

Interview is a communication process between employers and candidates regarding job characteristics and expectations of both parties.

Structured interviews are the most effective type of interview. The interview process is formed through identification of the key requirements of the job and a list of questions is drawn up. A panel of interviewers works through each set of questions with each candidate and scores them on their answers. At the end of the interview process the overall scores are considered and the best candidate chosen. Even where the interview is structured, this does not mean that follow up questions cannot be asked to probe more deeply into a candidate's skills and experience. An interview which does not do this, but instead sticks to a rigid list of questions, will not allow the interviewer to obtain the information required to make a proper decision. Members involved in the interview process should be trained in interviewing skills and the sorts of questions they should or should not ask.

Finally, the tests in which candidates may take part in differ to knowledge tests, skill test and ability tests. Knowledge tests are an efficient, effective and fair method to determine if candidates possess the related knowledge for the position.

Skill tests are a valid and efficient way to identify the best candidates. Skill test measure a person's current proficiency at performing a task that usually requires training or experience.

Ability tests are used to measure abilities such as verbal reasoning, problem solving and memory.

The advantages of tests are that permit uniform evaluation, reduce interview time, are ideal when there are many candidates and when content is technical or scientific and involves problem solving.

All these methods used in order companies to hire the best possible candidates. On the other hand, bad hires affect the company, the individual and all the stakeholders of the project. The wrong person doing the wrong job is harmful to the company's health. According to many managers' experience, they have all made bad hires, the cause of the bad hire can be traced to one of the following reasons.

- * Poor analysis of job functions
- * Poor analysis of necessary personality-skill profile
- * Inadequate initial screening
- * Inadequate interviewing techniques
- * Inadequate questioning techniques
- * Poor utilisation of "second opinion"
- * Company and career/money expectations were over or inappropriately sold
- * References were not checked.

In short, the manager failed to ask either himself or the interviewee the right questions at the right time; and perhaps even failed to interpret the answers given to his questions adequately.

Everyone can learn from a mistake and do a good job next time. At the same time, everyone can

remember a system that will assure to get answers to the three most important questions that guarantee a good hire.

Moreover, it will be useful to be mentioned some of the main areas where the recruitment and selection process of an organization fails. Some of these areas are:

- no obvious link of recruitment and selection with HR strategy and with broader organizational goals;
- unavailability of job analysis information;
- the use of invalid prediction methods;
- the lack of monitoring of the recruitment and selection process; and
- the lack of remedial actions in those organizations that do monitor staffing practices.

Furthermore, another issue that could be beneficial to be mentioned is training and development of employees. The role of Human Resource Management do not stop with the hiring of employees, improving or obtaining new skills is part of another area of Human Resource Management, known as training and development. As the structure of organizations continues to change—through downsizing or expansion—the need for training and development programs continues to grow.

Training focuses on learning the skills, knowledge, and attitudes required to initially perform a job or task or to improve upon the performance of a current job or task, while development activities are not job related, but concentrate on broadening the employee's horizons" (Nadler and Wiggs, 1986, p. 5).

Training can be used in a variety of ways, including (1) orienting and informing employees, (2) developing desired skills, (3) preventing accidents through safety training, (4) supplying

professional and technical education, and (5) providing supervisory training and executive education (Cherrington, 1995).

Each of the training methods mentioned has benefits to the individual as well as to the organization. Some of the benefits are reducing the learning time for new hires, teaching employees how to use new or updated technology, decreasing the number and cost of accidents because employees know how to operate a machine properly, providing better customer service, improving quality and quantity of productivity, and obtaining management involvement in the training process (Cherrington, 1995).

The type of training depends on the material to be learned, the length of time learners have, and the financial resources available. One type is instructor-led training, which generally allows participants to see a demonstration and to work with the product first-hand. On-the-job training and apprenticeships let participants acquire new skills as they continue to perform various aspects of the job. Computer-based training provides learners at various geographic locations access to material to be learned at convenient times and locations. Simulation exercises give participants a chance to learn outcomes of choices in a no threatening environment before applying the concept to real situations.

Training focuses on the current job, while development concentrates on providing activities to help employees expand their current knowledge and to allow for growth.

6.2 Recommendations

Each construction company should adopt a form in which it will be written the skills, knowledge, qualifications and experience required for each specific position. Appendix B provides the structure of this form.

Moreover, as interview is one of the most important methods of hiring, Appendix C suggested a typical form with interviews questions in order to be used from companies, so as to make the right decision as regards the appointment of employees. Another aspect to be considered is that there are some questions that are not allowed to be asked during the interview. Those concern the questions that are not directly related to whether the applicant can do the job. In Appendix D are referred non-job related questions that should not be asked during the interview. Appendix E shows an interview rating scale as to how those who interview, to evaluate the interviewees.

Finally, Appendix F shows a form of curriculum vitae, with some of the basic information that each construction companies should have from their candidates' employees.

6.3 Conclusion

"There's no more important decision which any company makes than hiring the right people" (Ramsay, 1994, p. 14)

Hiring is a process which happens in organisations on a day to day basis. It is the process on which a solid organisational foundation is built. Good hiring practices are developed and refined over time. This learning process takes time and effort and care should be exercised while evolving this process in an organisation. A strong organisation is built on strong hiring practices.

One of the most important aspects of any construction project is choosing the right professional team for the job. It is also important to evaluate the success of the selection method to ensure that it is effective. It is also helpful to review the selection methods that were used the last time that the job was vacant and check that they are still relevant and useful to the current selection process, particularly if there have been changes to the job or a requirement for new skills.

In conclusion, there is no such thing as the “perfect person” for any job. When hiring employees in today’s market, managers must be alert in knowing who and what they are looking for before, during and after the interview process. Therefore, no wonder today’s companies are showing increased concern about hiring processes which help them to get best employees.

In conclusion this thesis analyzed the most common selection methods and discovered who of these can be used in construction companies for the successful completion of projects.

Furthermore, in combination with the selection method used, the new hired employees should fulfill some basic criteria. These criteria are also mentioned in this research.

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Appendix A
POPULARITY OF
COMMON SELECTION METHODS

<u>Selection Method</u>	<u>Percentage of construction companies</u>
Interview	100%
CV'S	100%
References	83%
Application Forms	80%
Work Sample Tests	73%
Personality Tests	70%
Cognitive Ability Tests	65%

*Percentages indicate the proportion of organisations that report using each selection method when hiring staff (This data reflects a range of construction companies).

Appendix B

KEY SELECTION CRITERIA FOR STAFF

UTS:HUMAN RESOURCES

POSITION:

FACULTY:

Skills and Attributes

-

Knowledge

-

QUALIFICATIONS

-

EXPERIENCE REQUIRED

-

Written By:

Signature:

Date:

Approved by:

Signature:

Date:

Appendix C

TYPICAL INTERVIEW QUESTIONS

Open-Ended Questions

What do you enjoy doing away from your academic work?

Where do you see yourself 5 years from now?

What are your personal strengths?

What are your professional strengths?

What are your personal weaknesses?

What are your professional weaknesses?

What do you know about this organisation?

If I asked your friends to describe you, what would they say?

What frustrates you the most?

What has been your most disappointing work-related experience?

What are your short-term goals?

What supervisory or leadership roles have you had?

Hypothetical/Situational Questions

Your immediate supervisor has required you to complete a detailed report of departmental activities by the end of the day. Shortly afterwards, the head of department calls you in and asks you to work on an urgent task for her for the remainder of the day. How would you handle this situation?

A highly valued client of your organisation complains to you that he could obtain a comparable service at a cheaper rate from one of your competitors. How would you respond to this situation?

Behavioural Questions

Describe an occasion when you had a number of important tasks to be handled at once. How did you manage this?

Tell me about a time when you had to go beyond what is ordinarily expected of an employee to get the job done?

Tell me about a time when you had a difficult customer or fellow worker to deal with?

What did you do to manage this situation and what was the outcome?

(Adapted from Employment and Career Services, Griffith University.)

Appendix D

Interview questions

Subject	Non-job related questions you should not ask	Job-related questions you can ask
Age	How old are you? What's your birth date	Age related questions are allowed in signing up a new-hire for benefits
Arrests	Have you ever been arrested?	None
Conviction	Have you ever been convicted of any illegal activities?	Have you ever been convicted for stealing?
Handicaps	I can see you have a disability. Can you do this job?	This job would require you to carry out X,Y,Z duties. Can you perform those duties?
Gender	Almost all our employees are men. Are you sure you would feel comfortable in this environment?	None allowed unless there is a "bona fide" occupational qualification.
Family	No questions about applicant's family	Can you work such and such hours.

Appendix E

INTERVIEW RATING SCALES

Candidate Name: -

Job Position: -

Question: -

Dimension – Content

How well did the interviewee’s response address all relevant aspects of the question?

Not at all Slightly Moderately Very Extremely

Dimension – Confidence

How confident did the interviewee appear in answering this question? (Take into account both verbal cues, eg. tone, pitch & volume of voice, and non-verbal cues, eg. eye-contact, use of hands, facial expressions).

Not at all Slightly Moderately Very Extremely

Dimension - Clarity

How clearly did the interviewee’s response demonstrate their knowledge and understanding of the relevant issues?

Not at all Slightly Moderately Very Extremely

Appendix F

CURRICULUM VITAE

NAME

Address

Tel: 1111111111 – Mobile: 1324657989

Email:

Only include
picture
if specifically
requested
by employer
or hiring
manager

OBJECTIVE:

SUMMARY OF QUALIFICATIONS

EDUCATION

200x - 200x [School/Organization Name]

[City, Province]

[*Diploma/Certificate/Degree/Major*]

[Details of education completed.]

WORK EXPERIENCE

200x - 200x [Company/Organization Name]

[City, Province]

[*Job Title*]

[Details of position.]

SKILLS

[Click here and enter information.]

REFERENCES

References and letters of recommendation available on request.