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The effect of the workplace on motivation and demotivation of construction professionals

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Investigations have been carried out which suggest that motivation of employees in all industries is affected by the environment or culture in which they work. Research undertaken in Melbourne, Australia investigated the effect of the workplace environment encountered on a construction site on motivation and demotivation of construction professionals. The data collected supported the hypothesis that the environment of a construction site does affect demotivation levels of site personnel. Specifically, several variables were significantly linked to this result, including long hours, chaos, non-recognition for work done and colleagues' aggressive management style. The results provide a valuable basis for indicating how the construction industry can create a more attractive workplace environment for professional site staff.

Keywords: Culture, motivation, demotivation, management, workplace

Introduction

The construction process is largely a 'people' management business. The construction industry is complex, dynamic and uncertain, and requires highly motivated workers. The issue of employee motivation is important as it establishes a substantial foundation for high performance levels and less unproductive time.

Although some research has been conducted on motivation of operational construction employees (The Business Roundtable, 1982; Maloney and McFillen, 1986a; Olomolaiye, 1988, 1990a, b; Baldry, 1995), there is no indication of the effect of the workplace environment on professional staff. This reveals a potential gap in the field of knowledge surrounding motivation and demotivation of professional construction employees. This paper reports upon research undertaken to investigate the effect of the workplace environment on the motivation and demotivation of professional construction employees.

The findings are presented of an Australian study (Smithers, 1998) that focuses upon motivation of professional employees resulting from their workplace,

and the impact that the findings may have on the on-site workplace environment are then discussed. Conclusions are presented and suggestions are offered on how to make the on-site workplace more attractive to potential professional employees.

Motivation in the construction industry

Many definitions of motivation exist. Perhaps the neatest is that from Herzberg (1987), who said that 'it is only when one has a generator of one's own that we can talk about motivation. One needs no outside stimulation. One *wants* to do it'. Although the role of outside stimulation could be debated, Herzberg recognizes and emphasizes that one has to want to do the task.

There is considerable information on the testing of motivation theories among construction industry operatives. Some motivating factors are revealed by a number of surveys conducted among both operational and professional construction employees to be influential across the organization. As a result of its relationship to

productivity, much of the literature concludes by recommending variables or incentives that the research has shown to have a positive influence on motivation. These variables are presented in Table 1 for comparison.

Neale (1979) surmised that bonuses were difficult to manage and were ineffective. Olomolaiye (1990b) found that the effect of bonuses was dependent upon the economic development of the country. Maloney and McFillen (1985, 1986a, b) and McFillen and Maloney (1988) conducted research into operational construction employee motivation amongst union members in America. They concluded that:

- the primary means of influencing motivation is to make receipt of important job outcomes contingent on the performance or completion of the assigned task (1985);
- the expectancy theory is a workable conceptual base for understanding the motivation of construction workers (1986a);
- construction workers have a growth need strength similar to other operational trade workers (1986b).

They found that although construction work is perceived to be intrinsically motivating, it actually achieves a relatively low job enrichment score. In the UK, however, Davies and Duff (1994) emphasized the importance of intrinsic motivation, concluding that

Table 1 Variables found during research of construction operative motivation to be positively influential: A = Neale (1979), B = Davies and Duff (1994), C = Hughes (1991), D = Olomolaiye (1990a), E = Maloney and McFillen (1985)

Motivation factors	Construction industry researchers				
	A	B	C	D	E
High bonus	✓			✓	
Good reputation	✓				
Job security	✓			✓	
Interesting projects	✓		✓		
Positive feedback	✓				✓
Physical exhaustion	✓				
Financial aspects		✓			
Productivity		✓			✓
Tangible result		✓		✓	
Sense of achievement			✓		
Good pay/conditions			✓		
Working outdoors			✓		
Use of skills			✓		
Intrinsic rewards				✓	✓
Opportunity					✓
Good relationships				✓	✓
Good supervision					✓
Extrinsic rewards					✓
Level of pay				✓	

the visible nature of the construction task was a very important aspect of motivation and was an effective satisfier.

The research conducted by Maloney and McFillen, Davies and Duff and Neale reaches similar conclusions to those of other construction industry research conducted in the USA, Australia and the UK. The Business Roundtable of New York commissioned a report on 'construction labour motivation' in 1982. The report finds that:

- demotivating factors appear to be dominated by barriers to productivity and non-recognition;
- foremen 'are unable to motivate; craftsmen are self-motivated given the right conditions', this statement providing the only hint of recognition that the industry is capable of intrinsic motivation through the visual growth of a building.

A comparative report by the Royal Commission into productivity in the building industry in NSW (1991) revealed that the most popular aspects of the industry are good pay and conditions, but that the response varies according to the size of the organization and the employee's position within it. Although the reports differ in their format and conclusion, the improvements suggested by NSW respondents echo those of the Business Roundtable of New York report: better communications and planning on the part of the managers are necessary.

Research into professional construction employees is less extensive than that into operatives, and generally is based on behaviour motivation theories. Edwards and Eckbald (1984) suggest activities that should achieve increased productivity. Although not stated explicitly, the authors recommend that the client take more responsibility for projects, and all parties should understand, share and be committed to project objectives. They echo Oxley (1978), who also suggested that management and employees share project objectives and encourage a co-operative spirit to increase productivity.

Barrett (1993) asked UK professionals to indicate levels of 'wants' and 'gets' of the top three levels of Maslow's hierarchy (social needs, self-esteem and self-actualization). Needs were calculated from the difference between wants and gets. Architects indicated they received more social life from work than they wanted, less salary than required and insufficient bonuses or performance related pay. Quantity surveyors responded similarly, while overall mid-level professionals desire more bonuses than high level professionals. Barrett concluded that both wants and needs of the goals at the top of the hierarchy increase, in particular for low – mid level professionals, thus showing that this aspect of the theory is valid for construction professionals.

Chan (1993) conducted research among Australian project managers, using McClelland's theory of need for power and achievement, and Herzberg's two-factor theory. Chan conducted an analysis by the categories of experience, project size and income. Generally, project size had no bearing on motivation, but on the subject of salary Chan found that those with a higher income value project size more than those on a lower salary. As salary increased, project managers also desired a corresponding increase in achievement, power and control. Chan concluded that the characteristics of experience widely equalled the characteristics of age, and that for those with less experience Herzberg's theory was applicable.

An area of research yet to undergo much empirical testing in the construction industry is the effect of empowerment on motivation. Newcombe (1996) used the resources of the Tavistock Institute of Human Relations (1965, from Newcombe, 1996) to open discussion on the movement towards the modern construction management system. This is seen to have advantages over the traditional approach, by empowering employer and employee equally, and encouraging mutual goals. Hammuda and Dulaimi (1997) identify that the process of empowerment is motivating, but that several contingencies influence the success of the empowerment process. One such factor is the strong need for achievement felt by project managers, who should both be empowered and empower others. Jawahar-Nesan *et al.* (1996) collected data on empowerment of individuals in the construction industry and identified 62 empowerment activities, of which eight were critical. These included leadership activities, education and training, recognition (extrinsic to the task) and process improvement (intrinsic).

The study of professional construction employees in Melbourne

Methodology

The aim of the research was to investigate the possibility that the environment experienced on construction sites affects levels of motivation and demotivation. A number of techniques have been used successfully to quantify the subjective emotion of motivation. The Michigan organizational assessment rating technique is one such survey that has been used by a number of investigators such as Olomolaiye (1988) and Maloney and McFillen (1988). This survey was adapted for the investigation; it asked respondents to rate each motivating and demotivating variable in terms of its *importance* and its *presence*. Rating was carried out with four-point Likert scales for the importance measure-

ment, and three-point Likert scales for the presence measurement. The terms of reference applied to the Likert scale were taken from Bass *et al.* (1974), who recommend specific expressions which they suggest lead to the minimum overlapping of understanding by the respondent. A score for each variable was obtained by multiplying the rating given to the importance and presence of each variable. In the example illustrated in Table 2, 'client satisfaction' would have a motivation rating score of 12 (from 4×3) and the variable 'level of responsibility' would have a motivation rating score of 6 (from 3×2).

Each respondent was given a relative motivation index and a relative demotivation index indicating that individual's level of motivation and demotivation relative to the maximum possible levels of motivation and demotivation. Comparison between groups of individuals is possible through the use of the relative importance index (RII) and rank agreement factor (RAF). The reader is referred to Kometa *et al.* (1994) and Chan and Kumaraswamy (1997) for a more detailed explanation of the use of the RII and the RAF.

The variables were sourced from the literature on motivation and from a test group of people who are working or have worked in construction. The survey was piloted and ambiguities clarified prior to compiling the final survey instrument, to ensure variables were clearly calibrated for meaning and reliability. The instrument was distributed through human resource managers in commercial construction organizations in Melbourne, to professional staff who have some site presence. It was assumed that the term 'professional' would be interpreted to mean those employees who were not tradespeople. Respondents were asked to complete their job title to ensure their eligibility for inclusion in the analysis. In all 130 surveys were sent; after reminder letters 45% ($n = 58$) were returned.

The population for such a sample frame is not known, and not easily capable of determination. This is overcome by split-halves reliability testing of the respondents, which negates the requirement for the population to be known. The sample size accessed in this survey was restrictive in statistical analysis terms; the number of variables is large and the number of respondents comparatively small. This excludes from the analysis such techniques as ANOVA which require division of the sample into small sets and assumes a

Table 2 Example of scoring technique used by respondents

Motivating factor	Importance	Presence
Client satisfaction	1 2 3 4	1 2 3
Level of responsibility	1 2 3 4	1 2 3

normal distribution. Non-parametric tests are more appropriate for data of this nature; in particular the Kruskal–Wallis test, which is similar to the one-way between groups ANOVA. Although non-parametric tests are acknowledged as less powerful than their parametric counterparts (Coakes and Steed, 1996) they are suitable where samples are small and also where data do not appear to be distributed normally (Norusis and SPSS, 1993).

Analysis of the results

The modal value for the whole sample for the number of days spent on site each week was 1 (37%, $n = 21$). Slightly more of the respondents were on site up to 4 days per week (54%, $n = 31$), while 46% ($n = 26$) of the respondents were on site more than 4 days per week. These two groups had significantly different demotivation means, and this enabled their results to be compared with maximum reliability. Since the research investigated the effect of the site environment on motivation and demotivation, this significant difference in demotivation levels between the groups made a natural and convenient division point. The groups were known as the ‘full-time’ group and the ‘part-time’ group. The professional profile of both groups predominantly includes project managers; however, the full time group is completed by 1 quantity surveyor, 1 administrator and 7 engineers, whereas the part time group includes 3 quantity surveyors, 3 engineers and 1 administrator.

While testing the whole sample for statistical significance, the p value of the demotivation score was found to be 0.046, but the motivation score was not significant ($p = 0.748$). Thus it can be concluded that while time on site may be a significant demotivating factor it is not a significant motivating factor. This is an important finding because it implies that reducing demotivational factors appears to be the major effort required to improve employee productivity, rather than focusing on increasing the presence of motivational factors.

Two measures of relevance were used in the analysis: the statistical significance of rank agreement or disagreement (deemed significant at the 95% confidence level) and the degree of agreement or disagreement by rank. For the purposes of discussion, where there were 19 demotivating variables present: a rank disagreement difference of more than 9 (at least half the number of variables) represents *strong* disagreement, and a rank disagreement of less than half the number of variables but more than one quarter represents *some* disagreement.

The perceived *importance* of four catalogue items was subject to *some* disagreement between the two groups (see Table 3): the importance of ‘long hours’ exhibited the greatest disagreement of eight places, being perceived to be more important by the full time group with a significance value of 0.014. ‘Non-recognition for work done’ was also perceived to be more important to this group, by six places, although not significant. ‘Colleague’s aggressive management style’ and ‘poor

Table 3 Importance of demotivating items by site time (* indicates ranking difference is significant; bold text indicates strong or some disagreement between groups)

Catalogue items	Rank (1–4 days)	Rank (5 and 6 days)	Rank difference
1. Not enough challenge	1	4	3
2. Poor organization ethics	2	8	6
3. Hostile organization management style	3	1	2
4. Colleagues’ aggressive management style	4	9	5
5. Poor planning as a result of unfair resource distribution	5	5	0
6. Chaos/ad hococracy	6	7	1
7. Not enough responsibility	7	3	4
8. Non-recognition for work done	8	2	6
9. Colleagues mistakes	9	12	3
10. Unfair pay in comparison to my colleague’s	10	10	0
11. The work itself, e.g. hassles	11	13	2
12. Verbal harassment	12	14	2
13. Desire to do other things apart from work	13	11	2
14. Long hours	14	6	8*
15. Travel to work and back	15	16	1
16. Feeling isolated due to social interests	16	18	2
17. Having my opinion ignored by the opposite gender	17	17	0
18. Feeling isolated by the opposite gender	18	15	3
19. Travel between sites	19	19	0*

organization ethics' were perceived to be more important by the part-time group than by the full-time group, but once again were not significant. 'Travel between sites' was significant ($p = 0.044$) but was ranked as the least important variable by both groups.

The perceived *presence* of six variables was the subject of strong disagreement between the site time groups. 'Travel between work locations' was perceived to be more present to the full-time group by ten places, while 'colleague's aggressive management style' was perceived to be more present to the full-time group by nine places. The latter variable was significant ($p = 0.002$).

Causing *some* disagreement were the variables 'travel to and from work', 'desire to do other things' (both perceived to be more present by the part-time group), 'non-recognition for work done' and 'ad hococracy/chaos' (both perceived to be more present for the full-time group). All variables except the presence of 'ad hococracy/chaos' scored a presence rank difference of five; the latter variable scored a presence rank difference of eight. Significant catalogue items were the presence of 'poor planning as a result of unfair resource distribution' ($p = 0.046$), 'non-recognition for work done' ($p = 0.027$), 'chaos/ad hococracy' ($p = 0.011$), 'hostile organization management style' ($p = 0.017$), 'feeling isolated by the opposite gender' ($p = 0.017$) and 'feeling isolated due to social interests' ($p = 0.021$).

The reliability of the data was tested using the split-halves method. The sample was divided into two random groups, and the importance and presence of each variable was tested for significance. For the find-

ings of any differences to be held as reliable there should be no significant differences. As a result of this test, the *presence* of 'sense of achievement from feedback', 'level of responsibility', 'exposure to new and variable concepts', 'aggressive organization management style' and 'having my opinion ignored by the opposite gender' must be disregarded. Also significant to the random groups was the *importance* of 'travel between work locations', a variable notable in its significance to the workplace environment results, but subsequently disregarded.

Of the 19 demotivating variables tested, eight were found to be significantly ranked by respondents when grouped according to the proportion of time spent on site.

- The *importance* of 'long hours'
- The *presence* of 'non-recognition for work done'
- The *presence* of 'poor planning as a result of unfair resource distribution'
- The *presence* of 'chaos/ad hococracy'
- The *presence* of 'colleague's aggressive management style'
- The *presence* of 'hostile organization management style'
- The *presence* of 'feeling isolated by the opposite gender'
- The *presence* of 'feeling isolated due to special interests'

These eight variables related significantly to time spent on site are the focus of the following discussion.

Table 4 Presence of demotivating items by site time (* indicates ranking difference is significant; bold text indicates strong or some disagreement between groups)

Catalogue items	Rank (1–4 days)	Rank (5 and 6 days)	Rank difference
1. Long hours, e.g. more than 50 hours per week	1	1	0
2. The work itself, e.g. hassles	2	2	0
3. Travel to and from work	3	8	5
4. Travel between work locations	4	14	10
5. Colleagues' mistakes	5	7	2
6. Desire to do other things apart from work activities	6	11	5
7. Not enough challenge	7	10	3
8. Poor planning as a result of unfair resource distribution	8	5	3 *
9. Non-recognition for work done	9	4	5 *
10. Not enough responsibility	10	12	2
11. Unfair pay in comparison to colleagues	11	9	2
12. Colleagues' aggressive management style	12	3	9 *
13. Poor organization ethics	13	15	2
14. Chaos/ad hococracy	14	6	8 *
15. Hostile organization management style	15	13	2 *
16. Having opinion ignored by the opposite gender	16	18	2
17. Feeling isolated by the opposite gender	17	18	1 *
18. Verbal harassment	18	19	1
19. Feeling isolated due to social interests	19	17	2 *

Impact of the research findings on the attractiveness of the site environment

Working long hours

The site time comparison found significant difference in the rankings of the *importance* of the variable 'long hours' ($p = 0.014$). The full time site group ranked the importance of long hours (i.e. more than 50 hours per week) sixth out of 19 demotivating variables. The part-time site group, however, ranked the importance of long hours at 14th, a difference of eight places. Therefore long hours are perceived to be a more important demotivator to professional workers on site full time than to those who spend less time on site.

The occurrence of construction professionals working long (41–48) or very long (49+) hours per week is common in Australia. The Australian Centre for Industrial Relations Research and Training (ACIRRT, 1999) cites data from the Australian Bureau of Statistics for 1993 showing that about 20% work very long hours (49+ per week), and about a similar proportion work long hours (41–48 hours per week).

The importance of long hours may be related to job satisfaction and preferred lifestyle. If a worker has other responsibilities or preferred activities (family, social or sport activities) then the hours worked may be perceived as relatively important, regardless of their presence. The survey measured the respondents' perceptions of the importance and presence of a 'desire to do other things apart from work', but no significant difference in the rankings was found, and thus the results are inconclusive. The relationship between long hours, job satisfaction and lifestyle is inherently complex and warrants further investigation.

The importance of long hours was also found to be significantly ranked by respondents grouped according to age ($p = 0.027$). The item is perceived to be more important to the group aged 20–40 years, who ranked the item ninth, than for the respondents aged 41 years or older, who ranked the item 13th. Thus it is possible to state that long hours are a more important demotivator to the younger age group. Perhaps as a result of their lower status in the organization, long hours are not a decision this age group is allowed to make, whereas for those with more experience and more responsibility, long hours are not necessary but carried out through personal choice.

Non-recognition for work done

The perceived *presence* of 'non-recognition for work done' was shown to be greater for those on site full time, who ranked the variable fourth, compared with those on site part time, who ranked it ninth. There

was a significant difference of five places ($p = 0.027$). Ranking differences for this variable were not significant in other analysis categories. Two possible interpretations of this significance are offered.

1. Employees working 5 or 6 days per week on site actually receive less recognition than employees working on site 1–4 days per week.
2. Employees working on site have higher expectations than those based in the office, and the perceived difference between expected and actual feedback is greater.

A number of explanations for the perceived lack of recognition by respondents on site full time are possible.

1. Site based respondents have higher expectations for recognition than office based respondents due to differences in experience, personality or proximity to the project.
2. Office based respondents receive more recognition as they are in closer proximity to the source of the recognition givers, and a communication barrier between office and site prevents the recognition being passed on.
3. Office based respondents are superior to site based respondents in experience and responsibility, which gives them higher profile or status within the organization, making them more likely to receive feedback.
4. The organization culture provides recognition in areas other than public recognition, for example increased salary, bonuses and fringe benefits.
5. Senior managers are not aware that recognition is an important demotivating factor to site based employees, and simply do not provide sufficient recognition.

Poor planning as a result of unfair resource distribution

The *presence* of 'poor planning as a result of unfair resource distribution' (i.e. unequal or distribution perceived to be unfair of resources required to manage a construction project, e.g. labour, materials, plant and cash) was ranked fifth by those respondents on site full time, compared with eighth by those on site part time ($p = 0.046$). Two possible explanations are presented for this result.

First, poor planning as a result of unfair resource distribution is more present and tangibly more obvious on site than in an office. Distribution of resources in the construction industry results in limited resources (materials and skills) being located at the work front; the demand for resources in the office is negligible

compared with the demand for resources on site. It is more likely that unfair resource distribution is perceived to be present where demand exceeds supply: on the construction site. Increasing the number of work faces, with poor management and planning, can result in conflict between managers competing for a limited supply of labour.

A second explanation is that employees on site prefer to have a detailed plan. Experience has taught site based employees that the consequences of unfair resource distribution as a result of poor planning have far reaching implications. The impact of poor planning and unfair resource distribution is greater on site than in the office, where the effect of poor planning is a more obscure problem.

Chaos/ad hocacy

Unfair resource distribution might also be related to the *presence* of other catalogue items such as 'the work itself, e.g. hassles' or 'chaos/ad hocacy'. The presence of 'the work itself, e.g. hassles' was ranked second by all respondents when grouped according to time spent on site, although this result was not significant. However, the presence of 'chaos/ad hocacy' was ranked sixth by respondents on site full time, and fourteenth by respondents on site part time. The difference of eight was found to be significant ($p = 0.011$). This indicates that 'chaos/ad hocacy' is perceived to be more present by site based respondents than by office based respondents, but it does not attempt to quantify the actual presence of chaos on site or in the office.

Chaos implies forced diversion from the plan, or utter confusion. This is reflected in common adjectives of the industry being 'dynamic' and 'flexible'. However, these adjectives apply to the industry, not just to construction sites. A possible development of reasoning for this difference lies in the nature of the construction site as a focal point for a temporary organization, which involves the coordination of multiple parties to construct a unique product; inherently chaotic perhaps. Office based work, conversely, may be regarded as being a permanent collection of more defined tasks, is less proximate to the production centre, and is heavily involved with pre-production and the peripheral activities of production. This explanation is supported by Beardsworth *et al.* (1988) and Antony (1988) who agree that the uncertainty of project organizations is greater than that found in permanent organizations (from Loosemore, 1994).

Previous motivation research has largely ignored investigation of the presence of chaos, although some items have come close to assessing the role of 'ad hocacy' in motivating or demotivating the individual. However, chaos plays a substantial role in culture;

Maloney and Federle (1991) developed a model of organization culture, and explain that too much 'ad hocacy' may result in dysfunctional behaviour and squandering of resources.

The perceived presence of chaos is explained by the temporary organization theory, in which temporary organizations experience greater levels of uncertainty than permanent organizations. Site based respondents are clearly part of such temporary organizations and thus indicate the greater perception of the presence of chaos, heightened by their proximity to the uncertainty. It is also suggested that it is possible for individuals to have preferences for logic or for chaos, and that those with a preference for logic will have a keener awareness of the presence of chaos; however, this conjecture falls into the realm of personality theory and should be the subject of further research.

Colleagues' aggressive management style

The *presence* of 'colleagues' aggressive management style' was perceived to be greater by those on site 5 or 6 days per week who ranked it 12th. The rank difference of nine places was found to be significant ($p = 0.002$). The variable is not significant in any other analysis category. It is important to recognize that the value in this variable comes from the significant difference between the presence of this variable between the two groups; the difference is both strong and significant.

This result can be interpreted in different ways. Site employees may be actually more aggressive than office employees. Increased personal aggression may be a result of the nature of construction projects, involving economic responsibility, decision making at short notice with minimum information but far reaching consequences, and a competitive environment. Project teams constitute a number of individuals who work in close proximity to each other, and when a team member becomes aggressive it is inevitable that others in the team become aware of this and may respond in similar behaviour. However, both of these possible explanations assume that:

1. colleagues' aggression is less common in construction organization offices, and
2. office based respondents have the opportunity to avoid aggression through their increased status, responsibility and hence mobility.

Although the latter is possible, there is no measurement that indicates the first is true. Alternatively, a more studied argument for the significant difference between site and office based personnel, focuses on the prevalent culture of construction sites. Although sites have not been specifically referred to, much has been written on the culture surrounding male dominated

work places. Sinclair (1998) discusses how organizations favour masculinity and how leadership and masculinity have become interwoven. Collinson and Hearn (1994, from Sinclair, 1998) note one variety of masculine subculture being traditional authoritarianism advanced through bullying and fear.

Research into managerial or organizational subcultures in the construction industry has not yet identified masculine cultures as present more on site than in offices. Indeed they have commonly ignored the gender of a culture, preferring to focus on the market orientation of an organizational culture. However, the male dominated nature of the industry means the presence of a masculine subculture is a distinct possibility, and thus a possible explanation for the perceived increase in the presence of a colleagues' aggressive management style on site. It can be concluded that the significant difference in the perceived presence of colleagues' aggressive management style is attributable to the traditional culture of the construction site, described by Sinclair as masculine and encouraging aggressive behaviour as a show of strength.

Hostile organization management style

The respondents significantly agreed upon the perceived *presence* of 'hostile organization management style'. Those on site part time ranked the variable 15th, and those on site ranked it 13th ($p = 0.017$). The rank difference of two indicates agreement between the groups that hostile organization management style is perceived to be not commonly present.

Feeling isolated by the opposite gender

The *presence* of 'feeling isolated by the opposite gender' rated significant agreement ($p = 0.017$) of one place between 17th (by the full time group) and 18th (by the part time group). It is possible to conclude that the perceived presence of '*feeling isolated by the opposite gender*' does not vary between site and office based respondents. This result supports the statement that isolation by the opposite gender as a demotivating factor is not highly present in the construction industry. This would be argued against by some international researchers (Minkarah and Dorsey, 1993; Perrault, 1995) but agreed to by others (Gale, 1991; Moralee and Court, 1995).

All variables found to be significantly related to site time have also been examined for significance in relation to other categories. As may be expected, this variable was also found to be significant in relation to the gender of the respondent, although both male and female respondents significantly agreed that feeling isolated by the opposite gender is not present. The

male respondents rank it 18th, the female respondents rank it 16th ($p = 0.046$).

Feeling isolated due to social interests

The *presence* of 'feeling isolated due to social interests' was found to be ranked significantly in 19th by those on site part time, and 17th by those on site full time ($p = 0.022$). This is indicative of the perceived presence of this variable not varying according to the work environment, and is uniformly low.

Conclusions and suggestions for improving the attractiveness of the construction site workplace

The research was unable to conclude that there is a relationship between motivation levels and the amount of time a professional spends on the construction site. No significant differences in levels of motivation were found between those workers on site 5–6 days per week and those on site 1–4 days per week. This suggests that site management efforts to improve those factors that motivate white collar employees would be misplaced.

By contrast, employees on site 5–6 days per week have significantly higher levels of demotivation than employees on site 1–4 days per week. The data therefore support the hypothesis that the workplace environment affects demotivation levels. Many of the factors identified and discussed in this paper relate to the way the construction site work place is managed from a human relations point of view and the picture that emerges from this research is not flattering. Long work hours mean employees are not able to spend as much time on family and a fulfilling life outside work. This is a pertinent point to be considered where child rearing or caring for sick relatives may be an issue.

The pressures withstood by those on site for very long periods appear to be exacerbated and characterized by a propensity for poor planning, resource deprivation, chaos and/or ad hococracy, aggressive management style and psychological isolation. This is hardly conducive to charming the necessary able and highly talented recruits to the industry or to retaining those already working under these conditions.

The challenge facing the industry is one of improving the management style experienced on construction sites through increasing recognition, increasing planning effectiveness and decreasing the chaotic nature of a project. This should be supplemented by increasing awareness and reduction of the stress inducing factors highlighted above. This may be a function of the industry being highly cost competitive, with low profit margins leading to extensive cutting of corners.

Demanding that the industry cleans up its image, positions itself into a more profitable prospect and reduces stress factors for employees is not particularly helpful. The solution may be for construction companies to more strategically target their workload towards more profitable work while improving the construction site management style.

References

- ACIRRT (1999) *Australia at Work—Just Managing?*, Prentice-Hall, Sydney.
- Baldry, D. (1995) A study of construction operative workplace attitudes and the influence upon industrial performance, in *Proceedings of the 11th ARCOM Conference*, 18–20 September, York.
- Barrett, P. (1993) Motivation profiles for construction professionals, in *Proceedings of CIB W65*, Trinidad, W.I.
- Bass, B.M., Cascio, W.F. and O'Connor, E.J. (1974) Magnitude estimations of expressions of frequency and amount. *Journal of Applied Psychology*, **59**, 3.
- Chan, A.P.C. (1993) Motivation of the project manager, in *Proceedings of CIB W65*, Trinidad, W.I.
- Chan, D. and Kumaraswamy, M. (1997) A comparative study of causes of time overruns in Hong Kong construction projects. *International Journal of Project Management*, **15**, 1.
- Coakes, S. and Steed, L. (1996) *SPSS for Windows: Analysis without Anguish*, Wiley, Milton.
- Davies, R. and Duff, A.R. (1994) Intrinsic motivation and satisfaction from the work itself: perceived task characteristics of construction, in *Proceedings of the 10th ARCOM Conference*, 14–16 September, Loughborough.
- Edwards, B. and Eckbald, J. (1984) Motivating the British construction industry. *Construction Management and Economics*, **2**, 2.
- Gale, A.W. (1991) *What is Good For Women is Good For Men: Action Research Aimed at Increasing the Proportion of Women in Construction*, Chapman & Hall, London.
- Jawahar-Nesan, L., Holt, G.D. and Olomolaiye, P.O., (1996) Empowerment in the construction industry, in *ARCOM Workshop on Human Resource Issues in Construction Management*, Neale, R.H., Bagilhole, B. and Loosemore, M. (eds), School of the Built Environment, University of Glamorgan.
- Kometa, S., Olomolaiye, P.O. and Harris, F. (1994) Attributes of UK construction clients influencing project consultant's performance. *Construction Management and Economics*, **12**, 5.
- Loosemore, M. (1994) Problem behaviour. *Construction Management and Economics*, **12**, 6.
- Maloney, W.F. and Federle, M.O. (1991) Organisation culture and management. *Journal of Management in Engineering*, **7**, 1.
- Maloney, W.F. and McFillen, J.M. (1985) Valence of and satisfaction with job outcomes. *Journal of Construction Engineering and Management*, **111**, 1.
- Maloney, W. F. and McFillen, J.M. (1986a) Motivation in unionized construction. *Journal of Construction Engineering and Management*, **112**, 1.
- Maloney, W. F. and McFillen, J.M. (1986b) Motivational implication in construction work. *Journal of Construction Engineering and Management*, **112**, 1.
- Maslow, A. H. (1992) A theory of human motivation, in *Management and Motivation*, Vroom, V. and Deci, E. (eds), Penguin, London.
- McFillen, J.M. and Maloney, W. F. (1988) New answers and new questions in construction worker motivation. *Construction Management and Economics*, **6**, 1.
- Minkarah, E.C. and Dorsey, R. W. (1993) Women in construction, in *Proceedings of CIB W65*, Trinidad, W.I.
- Moralee, J. and Court, G. (1995) *Balancing the Building Team: Gender Issues in the Building Profession*, Institute for Employment Studies, Brighton.
- Neale, R.H. (1979) *Motivation of Construction Workers: Theory and Practice*, Site Management Information Service, No. 78, CIOB.
- Norusis, M. and SPSS Inc. (1993) *SPSS for Windows: Base System User's Guide*, Release 6.0, SPSS, Inc., Illinois.
- Olomolaiye, P.O. (1988) An evaluation of bricklayers' motivation and productivity, Ph.D. thesis Loughborough University of Technology.
- Olomolaiye, P.O. (1990a) An evaluation of the relationships between bricklayers' motivation and productivity. *Construction Management and Economics*, **8**, 3.
- Olomolaiye, P.O. (1990b) Construction operative motivation in the UK and Nigeria—A comparison, in *Proceedings of CIB 90 Building Economics and Construction Management*, International Building, University of Technology Sydney, NSW.
- Oxley, R. (1978) *Incentives in the Construction Industry—Effects on Earnings and Costs*, Site Management Information Service, No 74, CIOB.
- Perrault, R.J. (1995) Issues facing women in the construction industry: a comparison between men and women. *American Institute of Professional Constructors*, **9**, 2.
- Sinclair, A. (1998) *Doing Leadership Differently*, Melbourne University Press, Australia.
- The Business Roundtable (1982) *Construction Labour Motivation, Report A2*, The Business Roundtable, New York.