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The Identification Of IT Project Manager Competencies: A Grounded Theory Approach

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Abstract

A good project manager needs to demonstrate a range of competencies during the course of an IT project. The eventual success of a project may be at risk if certain competences are either not present or not applied appropriately. Utilising the grounded theory methodology and behavioural event interviews this research seeks to identify the key competencies of a project manager when dealing with critical project situations. Interviews with 10 IT project managers with varying levels of experience uncovered a number of competencies, some of which have not be reported elsewhere or are potentially more complex than might have been previously considered. Being able to manage multiple modes of communication emerged as an important part of the project managers’ role and those that communicated the most, appeared to manage their projects in a more positive manner overall. Knowing when to involve higher authorities in order to get cooperation from others also emerged as an important issue. Finally, it was observed that inexperienced project managers were just as likely to demonstrate competencies as those with extensive experience.

Keywords: Information Technology, Project Management, Competencies, Grounded Theory.
1 INTRODUCTION

There is a well-documented history of both expensive and embarrassing Information Technology (IT) project failures (see, for example, Standish Group, 2003). While the prevalence of IT project failures may be somewhat over represented (Sauer et al., 2007) compared with those that were completed successfully without fanfare, there is little doubt that significant and on-going issues continue. These issues lead to, at times, major IT project failures, some of which have catastrophic effects on the organisations involved (see, for example, Drummond 1996; Bussen & Myers 1997, Wang et al. 2007). Unfortunately, this is not a new problem, and on the face of it, causes of project failures today are not dissimilar to those of 20 years ago (Boehm 1991).

Much can be learnt from the past successes and failures of IT projects. For example we know that scope creep can lead to major project failure (Woolridge et al. 2009). We know that considered project cost management could have prevented many of the infamous IT project failures of the last few decades. We also know, amongst many other things, that people play the greatest role in any project and ensuring the human component of a project is well trained and managed is vital (Crawford et al., 2006). The “people” issues are critical to project success (and failure) (Muzio et al. 2007, Stevenson & Starkweather 2010). The most important person in any project is the project manager and ensuring they are adequately trained to deal with all project management tasks (and issues) is fundamental to project success (Sauer et al 2007). It is therefore important to know what a good project manager is and does, and what competencies they possess. We can also learn from inexperienced or poor project managers by identifying which competencies they do not possess or are yet to learn/acquire.

Competence, as has been noted by Skulmoski and Hartman (2010), is not a term for which there exists widespread definitional agreement. Nor is there a significant body of empirical research that has sought to identify the competencies associated with project management, with the construction industry being a notable exception (e.g. Dainty et al., 2004; Dainty et al. 2005). Skulmoski and Hartman provide a good summary of competency research and report that research appears to have changed in focus in recent times away from the technical skills of a project manager to more behavioural characteristics.

This study is a part of a wider, international study seeking to develop a competency-based performance model for IT project managers. The initial part of the wider research followed a more conventional approach in the development of a conceptual framework of knowledge, skills and behavioural competencies required for IT projects that formed the basis for identifying which competencies were critical for IT project management (Taylor & Woelfer 2010). That preliminary investigation focused on experienced project managers and sought to identify critical competencies using behavioral event interviews (Spencer and Spencer 1993) and thematic analysis (Boyatzis 1998). Results revealed support for previously identified competencies and prospective new ones, as well the manner by which these competencies were acquired.

The present study differs, in two important ways, based on the following (untested) premises:

1. While much can be learned from experienced project managers and how they deal with critical incidents, we believe much can also be learned from how inexperienced project managers act in similar situations.

2. Whether consciously or not, researchers are influenced by what they know and what they have read. The key researchers of this study were asked to participate as they were not familiar with the existing literature and therefore any preconceptions about what might be important/relevant did not exist. Thus, the competencies that form the basis of this study’s result are truly “grounded” in the data on which they are based.
This research follows the general principles of the grounded theory methodology (Glaser and Strauss 1967). In using grounded theory, the present study is unique when compared with other similar studies that seek to uncover the competencies of “good” project managers or the success factors of successful projects. Others have, intentionally, utilised existing literature as the basis for their investigations (e.g. Brill et al. 2006; Napier et al. 2009; Crawford 2005). While these studies have performed an important role in either validating existing theory, or uncovering potential new data associated with project performance, it can be argued that all of them are influenced to some degree by what has been published before. A “true” grounded theory study does not rely on extant literature in order to develop survey instruments or interview questions; rather it takes a truly “exploratory” approach to “uncover the real issues”. The uniqueness of the current study has permitted a bottom-up emergence of “real issues” to occur with considerable success. The research methodology section provides further detail on how this was achieved.

The structure of this paper reflects the grounded theory approach and the manner in which the research was carried out, as follows. The next section summarises the research methodology employed. This is followed by the results section in which raw and inferential findings are presented. The discussion section appears next in which the ‘grounded’ results from this study are contextualised with relevant extant literature. Finally, in the conclusions section, the contribution to the research is summarised along with future research opportunities.

## 2 RESEARCH METHODOLOGY

### 2.1 Grounded Theory

This research employed grounded theory, a research methodology proposed by sociologists Glaser and Strauss (1967) and first used in the nursing domain, but subsequently successfully employed in a range of disciplines. “The grounded theory approach is a general methodology of analysis linked with data collection that uses a systematically applied set of methods to generate an inductive theory about a substantive area” (Glaser, 1992 p. 16). While grounded theory is often used as method for data collection and analysis, it was initially developed, and still often argued, as a complete research methodology (Glaser and Strauss 1967; Glaser 1992).

In its simplest form, grounded theory involves reading (and usually re-reading) a textual representation (although visual observations might also be used) of the data (e.g. field notes or interview transcripts) and identifying potentially relevant data and their interrelationships. Being able to identify such variables and the interrelationships between them is termed theoretical sensitivity (see Glaser (1978), for a full discussion).

The grounded theory approach consists of a set of steps that, if carried out correctly, produces “data grounded” theory. The quality of the eventual theory is dependent on the execution of the process by which the theory is constructed. The advantage of the grounded theory approach is that if done well, the resulting theory will fit at least one dataset perfectly. This contrasts with theory derived deductively from grand theory, without the help of data, which could turn out to fit no data at all.

### 2.2 Data Collection

#### 2.2.1 Sample

Information Technology project managers within the local area were identified using a number of approaches. Initially, we identified prospective study participants on a reputational basis, but as commitments were received, we became more purposive in our approach, seeking variation to
ensure that a reasonable mix of project managers was included (Miles & Huberman 1994, pp 28). This mix included those of various ages and levels of experience, while also trying to include those who work in the public and private sectors, and in small and large organisations. In total we interviewed 10 project managers. The level of project management experience ranged from just one year to 20 years with an average of 9.3 years. Of the 10 participants, four had extensive project management experience (17-20 years), two could be classified as inexperienced (less than 1 year of experience, and the remaining four had moderate levels of project management experience (three to seven years). The average age was 43 with a range of 24 – 60. Eight were males, two were females. In terms of qualifications one project manager had no tertiary qualifications, one had a diploma, five had Bachelor’s degrees and three held Masters degrees. In terms of specific project management training or certification, six of the 10 held some form of certification or had received specific project management training.

2.2.2 Behavioural Event Interviews

The behavioural event interview (BEI) is a specific interviewing technique used to elicit true behaviours rather than an individual’s perception of their behaviour or indeed how they would “like” to describe their behaviour. The approach was developed by David McClelland specifically for identifying competencies in employees, especially as part of a recruitment process (Spencer & Spencer, 1993 p.3). The approach was itself derived from Flanagan’s (1954) critical incident technique. Spencer and Spencer (1993) describe the basic principle of the competency approach of the BEI is that “…what people think or say about their motives is not credible. Only what they actually do, in the most critical incidents they have faced, is to be believed.” (p. 115, italics in original). The application of the BEI to critical incidents is important. To be able to elucidate true behaviours, interviewers often need to focus on events that have occurred that are somehow memorable and non-trivial. “To be critical, an incident must occur in a situation where the purpose or intent of the act seems fairly clear to the observer and where its consequences are sufficiently definite to leave little doubt concerning its effects.” (Flanagan 1954, p. 327).

The BEIs conducted in this research all followed the same protocol and required project managers to describe to the interviewer critical situations in the form of a recent project in which they had to manage a complex or problematic situation or event. They were asked questions about the context of the situation, what led up to the situation, and what they considered in deciding how to handle the situation. Once specific actions taken were identified, reasons for those actions were sought and were particularly important in trying to understand the rationale for certain behaviours. Project managers were asked to describe the outcome once their action had been implemented. They were questioned on whether it was the expected outcome, whether it was effective and to provide any further thoughts or reflections. Having just explored the incident in such detail, the project managers often were able to provide greater insights at the end of the process than at the start. Once each critical incident had been fully explored the interviewee was given the opportunity to repeat the process for further incidents, an offer accepted by all participants. Because the specific BEI protocol used in this research had been previously used, and refined, as part of the wider international study, no changes were needed for this study.

Research procedures were approved by the Ethics Committee of the lead author’s institution. In advance of the interview, participants were provided with an information sheet outlining the purpose of the research and their rights. This was again covered at the start of each interview and written consent was provided by each participant before the interview commenced. A total of 10 semi structured BEIs were conducted, lasting between 40 and 70 minutes depending on the level of experience and the resulting number of incidents described. Interviews were electronically recorded and then transcribed. Project managers were given the opportunity to review their transcripts to confirm their accuracy.
2.3 Data Analysis

Since its inception there have been numerous interpretations and adaptations of the grounded theory methodology. Such adaptations have involved the overall approach, as well as the method by which results are extracted from raw data. Adaptation in the current study involved utilising the procedures most relevant to the subject of the study and the theoretical underpinnings of the research and the researcher. The flexibility that permits such an adaptation is considered appropriate for the successful implementation of the grounded theory approach (Strauss and Corbin 1990). The actual process followed closely matched that of Strauss and Corbin (1990), with first and third authors jointly coding all transcripts which ensured disagreements on codes could be immediately resolved when they arose. Consideration of the context in which the coded statement was being made almost always addressed the issue.

2.3.1 Open Coding

The purpose of open coding is to: “open up the text and expose the thoughts ideas and meanings contained therein” (Strauss and Corbin 1998, p. 102). It is a detailed and time consuming process that takes “raw” data and through an iterative process of examining, comparing and grouping produces a set of distinct, high-level categories of usable results. This raw data can be an object, event, act or interaction. For simplicity, we use the term “event” to describe the data identified in the interview transcripts.

As we had no preconceptions of what we were specifically looking for in the data, other than project manager competencies, we intentionally took a very broad approach in the initial identification of “events”. Anything that appeared to have some association with possible project management competencies, skills, activities or attributes was highlighted as an event. Events were then compared and an agreed set of events was arrived at, numbered and named. The purpose of naming the events was to provide a way of abbreviating what was often a long statement as well as preparing data for the next stage.

As part of the event identification process, each event was labelled as “+”, “-”, or “+-”, depending on the manner by which the event was described by the participant. Positive (+) events were generally those things that were viewed as having a positive impact on the project. Examples included having regular team meetings, enquiring about the well-being of team members, and communicating progress to the client. Negative (-) events were those things described by the participant that were in some way unhelpful or detrimental to project process and outcome. Examples include team member conflict, lack of influence over colleagues, and the need to involve a higher authority. There were a small number of occasions where it was either not possible to identify whether the identified event was positive or negative, or in fact it could be viewed as either. In these cases the event was classified as being neutral (+/-).

The next stage was to group like-events into more abstract concept groupings, with appropriate names. This process was carried out by two people and involved regular checking of transcripts to confirm the meanings behind some of the events. Each concept was labelled (A-Y) to allow for “back tracking” to the original data (see Table 1). Finally for the open coding stage, where possible, concepts were grouped with like-concepts to form a small set of categories (see Table 2).

2.3.2 Axial Coding

Axial coding is the process of relating categories and their properties to each other, via a combination of inductive and (to a lesser degree) deductive thinking. While open coding is concerned most with identifying individual elements and forming them into loose but related groupings, axial coding involves restructuring and rebuilding the data into patterns that are intended to reveal links and relationships (Hussey and Hussey 1997). The process here was to
“track back” to individual events within each high-level category and look for possible relationships, and areas of commonality. The process essentially added dimension and context to the categories and provided the basis for simple stories to be written in the selective coding stage.

2.3.3 Selective Coding

Selective coding is about developing a single storyline that encompasses all data, grounded categories and relationships. To establish the storyline, a ‘core category’ needs to be identified, this being the central phenomenon around which associated concepts and events are integrated. The core category should first emerge during axial coding. Having been established, the stories to be told have to be developed. Strauss and Corbin (1990) describe this process as beginning with the writing of a few sentences describing the essence of the story, simply providing a general descriptive overview of the story’s contents.

3 RESULTS

3.1 Open Coding

The open coding procedures described earlier resulted in the identification of 743 events deemed as being as potentially relevant to the competencies of IT project managers. The smallest number of events identified for a single participant was 29 while the largest was 133. The named events were then grouped into 25 concepts as shown in Table 1, which is ordered by the number of events in each concept.

<table>
<thead>
<tr>
<th>Concept Code</th>
<th>Concept Name</th>
<th>Number of Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>P</td>
<td>Client Relationship/Persuasion</td>
<td>80</td>
</tr>
<tr>
<td>F</td>
<td>Project management activities/meetings</td>
<td>78</td>
</tr>
<tr>
<td>A</td>
<td>Leadership</td>
<td>64</td>
</tr>
<tr>
<td>I</td>
<td>Interpersonal Skills/Awareness/intuition</td>
<td>64</td>
</tr>
<tr>
<td>N</td>
<td>Communication</td>
<td>58</td>
</tr>
<tr>
<td>C</td>
<td>Influence over others</td>
<td>56</td>
</tr>
<tr>
<td>H</td>
<td>Problem solving</td>
<td>47</td>
</tr>
<tr>
<td>K</td>
<td>Confidence (self)/Personality Traits/Character/Characteristics</td>
<td>40</td>
</tr>
<tr>
<td>E</td>
<td>Higher Authority</td>
<td>36</td>
</tr>
<tr>
<td>B</td>
<td>Project organisation</td>
<td>26</td>
</tr>
<tr>
<td>D</td>
<td>Staff capabilities</td>
<td>20</td>
</tr>
<tr>
<td>G</td>
<td>Prioritization</td>
<td>20</td>
</tr>
<tr>
<td>L</td>
<td>Experience</td>
<td>19</td>
</tr>
<tr>
<td>M</td>
<td>Information gathering</td>
<td>16</td>
</tr>
<tr>
<td>V</td>
<td>Achieving Results</td>
<td>16</td>
</tr>
<tr>
<td>O</td>
<td>Using initiative</td>
<td>15</td>
</tr>
<tr>
<td>R</td>
<td>Use of technology/technical knowledge</td>
<td>15</td>
</tr>
<tr>
<td>W</td>
<td>High Level project Visualisation/Oversight</td>
<td>15</td>
</tr>
<tr>
<td>T</td>
<td>Project involvement</td>
<td>14</td>
</tr>
<tr>
<td>Q</td>
<td>Adaptability</td>
<td>11</td>
</tr>
<tr>
<td>Y</td>
<td>Decision making</td>
<td>11</td>
</tr>
<tr>
<td>X</td>
<td>Training</td>
<td>10</td>
</tr>
<tr>
<td>J</td>
<td>External Issues</td>
<td>5</td>
</tr>
<tr>
<td>S</td>
<td>Personal satisfaction</td>
<td>4</td>
</tr>
<tr>
<td>U</td>
<td>Project Completion</td>
<td>4</td>
</tr>
</tbody>
</table>

Table 1. Open coding concepts, ranked by number of events per concept
The relative frequency by which like-events were identified in the transcripts (i.e. the number of events per concept) is graphically presented in Figure 1.

![Graph showing frequency of events per concept](image)

**Figure 1.** Frequency of events per concept

Continuing with open coding, like-concepts were then further grouped into a reduced set of nine category groupings as shown in Table 2. Consideration was given to further refinement of the groups as per the standard open coding procedures however such refinement did not occur naturally so this was taken as the cue to end open coding with the nine category groupings.

<table>
<thead>
<tr>
<th>Category Code</th>
<th>Category Name</th>
<th>Concepts Contained</th>
<th>Number of Events</th>
</tr>
</thead>
<tbody>
<tr>
<td>V</td>
<td>Internal and External Communication</td>
<td>I, N, P</td>
<td>202</td>
</tr>
<tr>
<td>II</td>
<td>Project Control</td>
<td>B, F, G, H, M, Y</td>
<td>197</td>
</tr>
<tr>
<td>I</td>
<td>Project Oversight</td>
<td>A, O, T, U, V, W</td>
<td>128</td>
</tr>
<tr>
<td>III</td>
<td>Higher Authority Involvement</td>
<td>C, E</td>
<td>92</td>
</tr>
<tr>
<td>VII</td>
<td>Personal (PM) Characteristics</td>
<td>K, L, S</td>
<td>63</td>
</tr>
<tr>
<td>IV</td>
<td>Project Team Capabilities</td>
<td>D, X</td>
<td>30</td>
</tr>
<tr>
<td>IX</td>
<td>Use of Technology</td>
<td>R</td>
<td>15</td>
</tr>
<tr>
<td>VIII</td>
<td>Adaptability</td>
<td>Q</td>
<td>11</td>
</tr>
<tr>
<td>VI</td>
<td>External issues</td>
<td>J</td>
<td>5</td>
</tr>
</tbody>
</table>

**Table 2.** Category Groupings

### 3.2 Axial coding

The axial coding process permitted the researchers to find a range of associations and relationships between data at all conceptual levels. For example, those project managers who appeared to focus highly on Internal and External Communication (Category: V) also appeared to have higher than average level of self-confidence, were assertive, and gave greater attention to their own abilities/characteristics (Concept: K) than most others.
In order to explore these associations and relationships, we developed a profile of each project manager, in terms of the number of events identified in their transcripts in each of the five primary category groupings, using a radar diagram as shown in Figure 2. The percentage of events for each project manager associated with each category is displayed. For example if 20% of a project manager’s events related to project control, then the line for that project manager would cross the project control line at 20%. While it is not possible to make broad statements from just 10 interviews, it is interesting to note that, contrary to our expectations at the start, no links could be observed between the age or project management experience of the project managers and any of these five category groupings.

The radar diagram reinforces the predominance of the communication and project control categories. What also emerged was that managers with low levels of negatively presented events tended to describe more internal and external communication events, as shown in Figure 3. While it is not possible to draw any conclusions from this number of interviews, it does present the opportunity for further exploration and analysis.

Figure 2. Percentage of events identified from each participant linked to each of the top five category groupings

Figure 3. Association between positively described events and percentage of communication linked events
3.3 Storylines

The exploration of the relationships during axial coding contributed to the storylines that subsequently emerged from the selective coding. The disparity in size (number of events) of the nine categories is evident in Table 2 with 92% of all events being associated with the five largest categories. Thus, only storylines for these five categories are provided.

3.3.1 Internal and External Communication

A competent project manager must be able to communicate with all project stakeholders, both internally and externally. Internally, project managers need to have strong interpersonal skills and have empathy for those they are managing. They also need to be forceful when required. Externally, they need to be able to communicate with clients in a professional manner.

This category includes the highest number of events and was the highest “reported” category for five of the 10 project managers. The three related concepts (interpersonal skills/awareness/intuition; communication; and client relationship/persuasion) accurately reflect the three emergent themes in this area. Firstly many project managers talked about the need to understand and have empathy for project team members and the importance of this for overall project success. One project manager commented:

I generally started with the people who I saw were working the hardest, because I was concerned for their well-being. And those people generally seemed to be showing the most frustration as well. Just because they were working so hard at something and it wasn’t happening and things like that, and there was a lot of energy being put in. And so I started with those people, and I just wanted to yeah just talk to them about “how are you doing?”

Similar comments were expressed by others who felt that it was their duty as project manager to not just express concern for the well-being of their team members, but for the team members to realise this concern was genuine. There was also much discussion about general communication within the project team, often with a negative focus where some form of communication breakdown had occurred, with, in some cases, quite serious implications:

A few days later the (sic) actually switched off all our phone systems and we hadn’t asked them to do anything. We had a major communication breakdown.

A number of comments were made about the role of informal communication and the role of the project manager in facilitating this:

...you need to get along with people in just being friends, but you are using it to communicate and getting people to buy in.

The importance of the project manager being able to communicate and manage client relationships was mentioned by all project managers. Sometimes this related to ensuring that client communication was being received and understood as was intended:

...you need to understand that the way you view your message, most of the time it’s not the way they will receive it.

The only thing that I would say is ‘you talk, you discuss, you double check, you say something you ask them to repeat’. Once you are happy in terms of the message has been delivered properly, then you send an email: ‘As we talked earlier on today-dadada’ -just formalise that.

3.3.2 Project Control

The project manager must be familiar with all aspects of the project. They need to know when to get involved, they need to possess fundamental project management skills and they need to be
able to gather information when required, prioritise tasks, solve problems as they arise and make decisions in a timely fashion.

While this category comprised six concepts and 197 events, it was dominated by project management activities and problem solving, which comprised 63% (124) of these events. The focus of this category was very much on the day-to-day operation and management of a project:

...the first thing is that a project manager should have all the hard skills as a project manager. So what I mean by hard skills is your normal planning skills...

It was common to see that the emergence of a problem or some sort of decision point was the initiator of some sort of control activity. This might be organising a meeting, reallocating duties, reprioritisation of tasks or searching for information. One of the more common project control tasks is the running of meetings.

...we have regular one on one meetings to talk about issues, what he is doing, the task for next week and all those things. We’ll try to solve issues together...

For most project managers, problems were routinely encountered and it was important to have a plan to deal with them:

First and foremost we took each of those roadblocks that was being thrown at us and then we looked at it purely from the perspective of what aspects of those roadblocks are pertinent to be addressed at that point in time and then basically a simple set of you know project management tools basically. Just treat it as an issue, record it in the issues register, identify some resolution plans, and break down the issue into one or more components so that whatever that is pertinent to be addressed in that point in time, assign ownership.

3.3.3 Project Oversight

It is important that the project manager can see the big picture and not get bogged down with details. They need to know what their role is in the project and demonstrate leadership and initiative.

Whereas process control activities tended to be associated with day-to-day operation activities and were largely internally focused, the project oversight category had a more strategic or high levelled focus. This was the third largest category, comprising 127 events across six different concepts, the largest of which was leadership with 50% (64) of the events. The remaining events were fairly evenly spread across the remaining five concepts, none of which contributed more than 13% of the total for the category. Leadership commonly manifested itself in the management of staff:

I had to make a decision and I removed this person of the project and I replaced him with somebody else.

It was also common for the project manager to show leadership when there had been issues raised by a client. As the project manager, they have overall responsibility for the project and must be willing to show leadership and act without delay when needed. This can often send a very important (and needed) message to the client:

I actually realised that something needs to change and if people and personalities are going to be the issue then we need to address it. And I decided that if I had to- sacrifice is not the right word- but if I had to be the scape-goat, let me be the scape-goat, and at least the client can recover from that.

Several project managers spoke of the need to see the bigger picture and the role the project played with the organisation, and other projects:
I would say that the project manager should understand what the project does for the business. So what the business problem is that he or she is trying to solve as part of the project, and how it will solve it.

3.3.4 Higher Authority Involvement

There may be times when higher authority involvement is necessary and indeed beneficial. However the project manager should be cautious about resorting to this too often or too soon and not do this as a way of avoiding conflict or actually doing their job. Quite often higher level involvement occurs when project managers fail to have the necessary influence over their peers/colleagues. This could be due to the personality or inexperience of the project manager, or because they have not been given the necessary authority or trust to carry out their role.

This category comprises two quite different, but related concepts: Influence over Others and Higher Authority. It is particularly interesting how these two are linked. By their very nature, IT projects are often multi-disciplinary and at times impact many parts of an organisation. The project manager needs the authority within the organisation to carry out the project, and often that involves working quite closely with a range of people and a range of organisational levels. A number of the project managers described significant challenges in this regard:

...he saw me as a peer and why was I telling him what to do?

...we were on a level type thing so being a project manager didn’t give me the right to tell him what to do.

It was a little surprising how often such comments as these were made. It seems that many project managers, for whatever reason, struggle to have the co-operation they feel they need from their colleagues. In many cases this led to project managers talking to their bosses or supervisors in order to “force” that co-operation:

...so the way I got round it was to involve my manager....

So I had to get my manager and his manager involved....

Not all incidents relating to the involvement of a higher authority were like this however. In some cases it is simply routine to keep supervisors or managers involved. Often it is the higher authority that initiates the involvement.

3.3.5 Personal (PM) Characteristics

A competent project manager needs to demonstrate self-confidence. They also need to have experience in project management. Gaining personal satisfaction in successfully completing a project is another valuable asset.

The final category described here relates to the project managers themselves. It is concerned with their own capabilities, their ability to reflect on their own abilities and performance. It also includes their experience and the satisfaction they get from successful completion of a project. Collectively, this category involved 63 or 8% of the identified events. One of the most commonly identified events in the group related to confidence, sometimes positively, sometimes negatively:

So part of it is that you have to back yourself and I guess looking at project competencies - self belief - and also sometimes when you get it wrong you have to say you’re wrong and the other big one is also to admit when you don’t know

I did say to him one day that I don’t think that I can manage the project.

Experience clearly is important. Being able to learn from past successes (and failures) is invaluable:
Intuition plays a major role because many times I’ve believed without thinking through stuff fully and clearly, sometimes whatever come to mind as a first thing, by in large if you’ve got the right experience and exposure, it sounds right.

4 DISCUSSION

A number or authors have sought to identify project management competencies across a variety of professions and utilising a number of research approaches. This prior research is now considered and compared with the results from this study. It is reassuring to note that most, if not all, of the competencies routinely reported, emerged in this research. For example the Project Management Institute (2002) presents a list of 19 behavioural competencies. While there are obvious differences in naming and terminology, 16 of them emerged within the present study either at the event or concept level. Only self-control, directiveness/assertiveness, and conceptual thinking did not clearly emerge. Napier et al. (2009) established a set of nine skill categories. All nine of these can be directly linked to either a concept or category in the present study. As an illustration of this, Napier et al.’s planning and control, and general management skill categories encompass behaviours very similar to the project control category of this study. Their leadership category is almost identical to this study’s leadership concept, and their communication, team development and client management categories link to the three similarly named concepts that fall within this study’s internal and external communication category. Brill et al. (2006) extracted 78 project management competencies out of 117 project management success factors which were in turn grouped into eight categories. Six of these relate directly to four of the categories of this study while the remaining two were closely linked to two of this study’s concepts. It is a similar situation when comparing the present study with the results of Skulmoski and Hartman (2010). They identified seven key competencies, three of which directly related to categories in this study and a further three aligned with concepts. Only professionalism (from Skulmoski and Hartman) did not emerge from this study although four of the six components of it did appear as events in this research. Overall this suggests that the grounded theory approach incorporating BEIs, even with a relatively small number of interviews, is able to uncover fairly well accepted project management competences.

What is more interesting is what this study may have uncovered that has not been previously identified, or may have been considered from a different perspective. One such competency relates to the project manager having influence over others. Others, (e.g. Skulmoski and Hartman 2010) have linked this to competencies associated with negotiation, yet little evidence has been found that links this to the related concept in this study, higher authority. Project managers both experienced and inexperienced spoke of the challenge in gaining the co-operation of colleagues and the need to seek higher level involvement to help get that co-operation. While negotiation skills may have helped in some of the examples described by the project managers, there seemed to be a significant number of cases when higher authority was required, and the project manager needed to be skilled in deciding when, why, and how an issue should be escalated.

Most studies have identified the need for good communication skills. This was supported by the present study, however three distinct types of communication were uncovered, each demanding specific skills. Napier et al. (2007) talk about speaking, writing and listening to upper management and staff. A similar skill set is outlined by Brill et al. (2006) who also make reference to stakeholders and networking skills. Skulmoski and Hartman (2010) again focus on specific communication skills such as listening, verbal skills, writing, and presentation skills. The present research also uncovered the need for such skills, but additionally identified the importance of considering the different parties for whom communication was required and the different situations in which communication skills were needed. These preliminary results suggest that greater consideration of competencies associated with communication decisions (i.e.
what to communication, how to communicate, and when to do so) is equally, if not more, important than functional communication skills.

The assessment of events as being either negative or positive offered the opportunity for greater exploration of possible relationships between a variety of project management activities and dimensions. It was though this that the possible association between positively described events and communication described events emerged. What this association implies is that the project managers who engage in communication (of varying modes) the most, are more likely to manage their projects in a positive, perhaps proactive, manner. Those project managers for whom communication is less a part of their project management approach, are perhaps more likely to need to react to problems or issues and in terms of communication this would involve dealing with communication break-downs or poor communication.

Finally, it was noted in the introduction that this research was unique, in part, due to the inclusion of both experienced and inexperienced project managers. Previous studies have typically sought experienced practitioners, when attempting to uncover best practice or competence (see, for example, Brill et al. 2006; Dainty et al. 2004; Skulmoski & Hartman 2010). This research purposely included both experienced and inexperienced project managers and while more experienced managers did refer to drawing on their previous experiences, we did not find any other distinguishable link between experience and the concepts and categories. Even in the Higher Authority category, which might have been expected to occur more with less experienced managers, we found that both less and more experienced managers spoke of difficulties related to their level of authority. Clearly, with our small sample we cannot draw any conclusions about the role of experience, but we believe more investigation is warranted.

5 CONCLUSIONS

This research makes a significant contribution by taking a unique approach to identifying information technology project manager competences. The combination of behaviourial event interviews and the grounded theory research methodology has resulted in the exposure of a number of important project manager competences that the researcher did not go in search for, nor was the project manager directly questioned about. Moreover, they are competencies that the project managers have actually demonstrated rather than describing what they “would” do.

Our findings provide additional support for many of the key competencies that have been reported elsewhere. More significantly it provides new insights into the use of higher authorities in order to get co-operation from colleagues when negotiation has been unsuccessful, and the need for more than basic communication skills when dealing with different communication situations. It also uncovers an important link between the importance placed on communication and the overall positivity of the events/issues that a project manager encounters or deals with. It is also important to note that inexperienced project managers are often indistinguishable from their more experienced colleagues in terms of their project management competence.

This is still much to uncover about project management competence. The behaviourial event interview, when correctly carried out, offers unparalleled opportunities for uncovering behaviours that are simply impossible to extract in any other way. Further exploratory work of this nature, both in the IT field and others, will lead to a far better understanding of what makes a competent project manager.
References


