

University of Southern Queensland
Faculty of Engineering and Surveying

**A Comparative Review of Attributes of
Engineers in Senior Management Roles**

A dissertation submitted by

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In fulfilment of the requirements of

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towards the degree of

Bachelor of Spatial Science (Surveying)

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Abstract

A comparative review of attributes of engineers in senior management roles in small, medium and large organisations



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1. INTRODUCTION

This research project is an investigation into what skills and attributes engineers need in order to make it to senior management positions. The main focus will be on small, medium and large companies and what these companies expect of their managers.

2. BACKGROUND

The low number of CEOs who hold an engineering degree has attracted attention from various groups such as the Institute of Company Directors (AICD), the Centre for Engineering Leadership and Management and Engineers Australia (EA). These groups are looking for answers as to why many engineers are not progressing to senior management roles and fulfilling their career potential.

3. OBJECTIVES

- To determine what qualities and traits, both personal and technical, companies expect of their Chief Executive Officers.

- To investigate why many engineers are currently overlooked as likely candidates for the position of CEO.
- To investigate ways in which engineers can improve their chances at being considered for the position of CEO.

4. METHODOLOGY

A survey was undertaken on senior managers and director of local, national and international companies as well as managers of external recruitment agencies. The responses were allocated into two categories – short answer and ranking.

5. ANALYSIS / FINDINGS

Two methods were used to analyse the results of the surveys.

- The themes of the short answer components were compared to identify any similarities or differences between the different sized companies.
- Graphs were generated for the ranked component and compared for any similarities or differences.

The three different sized companies expected similar skills and attributes of their leaders. Certainly the execution of their duties varies from local to national to international companies. However, there definitely exists a core set of skills and attributes which all companies expect of their leaders. Some of these can be taught theoretically, others require practical training.

6. CONCLUSIONS

There are a set of skills and attributes which are expected of senior managers. Possessing these would help facilitate one's promotion to the senior ranks of any size company.

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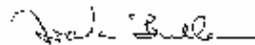
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Date

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CHAPTER 1 INTRODUCTION

1.1 *Statement of Aims*

This research project aims:

- To determine what qualities and traits, both personal and technical, companies expect of their Chief Executive Officers.
- To investigate why many engineers are currently overlooked as likely candidates for the position of CEO.
- To investigate ways in which engineers can improve their chances at being considered for the position of CEO.

1.2 *Objectives*

This research project aims to provide information to achieve the following goals. Firstly, Engineers should be able to reach their full potential in their careers by improving themselves in various ways. Secondly, universities should be able to improve the quality of their graduate engineers by providing their graduates with the necessary skills to become great leaders. Finally, companies should be able to choose or implement management programs to produce the right leaders with the necessary skills to run them efficiently, responsibly and ethically.

1.3 The Problem

The number of engineers advancing to senior management positions in Australian corporations has been dwarfed by other professions such as accountants, lawyers and economists. This problem has attracted attention from various groups such as the Australian Institute of Company Directors (AICD), the Centre for Engineering Leadership and Management (CELM) and Engineers Australia (EA). These engineering bodies have expressed their interest in determining what is causing this trend and what can be done to improve the attractiveness of engineers as candidates for senior management positions.

1.4 The Research

A literature survey will be conducted in the area of engineering leadership and management to identify common beliefs and theory on what skills and attributes individuals need to be able to lead engineering corporations. A survey of engineers in influential leadership positions will then be undertaken to identify the skills and attributes common to these individuals. The candidates surveyed will be from small, medium and large organisations to try and identify if there is any difference in these skills and attributes between different sized companies.

CHAPTER 2 BACKGROUND AND LITERATURE REVIEW

2.1 *Background of Companies*

Three different sized companies will be investigated in a hope to gain a better understanding of why engineers are overlooked as potential candidates for senior management roles. The companies which will be looked at are:

- SK Corporation (an international company)
- Origin Energy (a national company)
- Murray & Associates (a local company)

2.1.1 SK Corporation



Figure 2.1: SK Corporation Ulsan refinery.

(Source: SK Corporation, 2007).

SK Corporation is a global energy company. They have twenty-five oil and gas blocks in fourteen countries. 61% of their petrochemical products are sold internationally. Their daily crude oil production is currently 20,000 barrels. According to their 2006 annual review, the company generated a US\$23.6 billion turnover, US\$2.4 billion in underlying earnings before interest and tax (EBIT), US\$1.4 billion in attributable profit and a net operating cash flow of US\$1.8 billion.

2.1.2 Origin Energy



Figure 2.2: Origin Energy plant.

(Source: Origin Energy, 2007).

Origin Energy, is a top 100 ASX listed company involved in gas and oil exploration and production, energy retailing, power generation and utility network management.

According to their 2006 annual review, Origin Energy had an annual turnover of A\$5.9 billion, underlying EBIT of A\$623 million, attributable profit of A\$454 million and a net operating cash flow of A\$309 million.

2.1.3 Murray and Associates



Figure 2.3: Surveying.

(Source: Murray and Associates, 2007).

Murray & Associates Pty Ltd is a professional survey practice established on the Sunshine Coast. They have five offices in Queensland with their main office located in Nambour. It is a privately traded company not listed on the Australian Stock Exchange. According to their 2006 annual review, Murray & Associates Pty Ltd generated an annual turnover of A\$10 million, underlying EBIT of A\$2.4 million, attributable profit of A\$1.6 million and a net operating cash flow of A\$1.2 million.

These three companies differ significantly in size as can be seen in the previous brief overviews. An engineer could be suited to the role of CEO of these companies as they all deal with engineering principles and skills. However each of these companies may require a different set of skills of their CEOs due to their difference in size. By investigating what is required of the CEOs who work for these companies we can get an insight into what skills and personal traits engineers should possess in order to fill those positions.

2.2 Literature Review

The first aim of this project is:

To determine what qualities and traits, both personal and technical, companies expect of their Chief Executive Officers.

In regard to this the literature review thus far has revealed the following:

- 1) As managerial responsibility increases, technical skills become less important.
- 2) Build a reputation that portrays credibility and integrity.
- 3) Have strength to initiate change and follow it through.
- 4) Give yourself a platform to shine.
- 5) Life experiences are important in developing leaders.
- 6) Be a team leader and motivate people.

2.2.1 As managerial responsibility increases, technical skills become less important.

There is a common view among successful leaders that technical skills are a less important skill for senior managers to exhibit. Dr Michael Badawy (Jul 2006, p. 64) theorized that there are three types of skills managers must develop: technical, administrative, and interpersonal. He goes on to explain that technical skills are those associated with technical activities undertaken in the department. Administrative skills are those which allow a manager to distinguish alternatives, make a decision, and act on that decision. Finally, interpersonal skills are those which allow a manager to communicate with, motivate, and influence people. He also states that interpersonal skills are probably the most important set of skills for a manager to possess and that technical skills can actually be detrimental at an executive management level. The managing director of Abigroup, Peter Brecht (cited in Georg Oct 2006, p. 66), confirms this view by stating 'As managing director you deal more with strategic and people issues as well as new business opportunities, while the engineering component diminishes'. Prof Archie Johnston (cited in Georg Oct 2006, p. 6) shares the same view. He states that engineers cannot rely on good technical skills to advance them into managerial positions. He says they must develop other skills such as 'communication, teamwork, and an understanding of politics and cultural differences'. It seems there is a general view among engineering leaders that engineers cannot rely solely on technical skills to enable them to fulfil senior management roles.

2.2.2 Build a reputation that portrays credibility and integrity.

The literature review found a view among successful leaders that is important to lead with honesty and to be respected. No customer wants to be dealt with dishonestly and they want a reliable product or service. Therefore leaders should also display these traits to create a reputable culture within the company. Kouzes & Posner (2002, p. 7) states that if people trust your company and your company trusts them, there are few limits to what you can achieve. Maxwell (cited in James and Ross Mar 2006, p. 63), vice-president of exploration and integrated business development at BHP Billiton has a similar view. He considers it critical for companies to build credibility and integrity over time.

2.2.3 Have strength to initiate change and follow it through.

It is a commonly held view among successful leaders that the difference between managers and leaders is that managers wait to be told what to do and then do it, whereas leaders vision change then implement procedures to go about those changes. Truong (cited in James and Ross Nov 2005, p. 61) believes both having a vision and having a realistic strategy for getting there are equally important. It is no good having grand visions for the company if they are not realistic. Skeffington (2005, pp. 64-65) explains how potential CEOs need to be regarded as an agent for change. He goes on to say that it is imperative CEOs are not indecisive or lack boldness. Successful CEOs are able to concentrate on concepts and strategy.

2.2.4 Give yourself a platform to shine.

Being able to associate yourself with other executives is seen as an important aspect of reaching executive positions. There is no chance for personal advancement if your achievements are gone unnoticed. Skeffington (Dec 2005, pp. 64) explains that CFOs have an advantage over other executives in the succession stakes because they have a closer relationship with the board or even an executive director.

2.2.5 Life experiences are important in developing leaders.

Life experiences can often help individuals acquire the skills they need to become good leaders. Truong (cited in James and Ross Nov 2005, p. 61), chief executive of Jurlique, is a good example of how life experiences can help advance your skills as a leader. He came to Australia as a refugee staying in detention and refugee camps. This enabled Truong to view change as a good thing and something necessary to get to where we want to go. He now has the view that 'it is often the second or third approach that gets you there in the end', a view obviously not held by those afraid of change. Brecht (cited in Georg Oct 2006, pp. 65-66) has also had life experiences helping him to become the managing director of Abigroup. He learned his leadership skills "on the job". He gained most of his knowledge through experience and the assistance of financial officers.

2.2.6 Be a team leader and motivate people.

Being able to motivate people through change to achieve a common goal is viewed as an important attribute an executive director must possess. Skilled workers are in high demand and being able to retain and motivate them is essential to the success of companies. Brecht (cited in Georg Oct 2006, pp. 65-66) believes frequent communication is important in retaining skilled workers. Ireland (cited in Clark Mar 2007, pp.22-25) consultant with Egon Zehnder International believes that motivating a team and being able to listen are vital skills a CEO must demonstrate. O'Neill (cited in Clark Mar 2007, pp.22-25), chief executive of The Executive Connection (TEC), agrees with Ireland explaining that creating a mindset for people to follow a vital role of a chief executive. Robinson (cited in Georg Jul 2006, p.62), chief executive officer of the AECOM group's operations in Australia, also agrees stating that the shortage of skilled engineers is one of the biggest challenges his company faces.

2.3 Consequential Effects

It should be remembered that CEOs are in a very influential position and one which holds great responsibilities. Their decisions may directly affect employees and their families, communities, the environment and even political stability. This research project may be used to shape future engineers so they have a better chance at reaching senior management positions. Therefore there is an obligation to ensure the rights and wellbeing of the groups affected by CEOs decisions, are protected. Engineers should not be manufactured into believing the bottom line of a company is the only thing worth worrying about. Most companies now reflect this view. SK Corporation incorporates management ethics into its business as follows:

Ethical management recognizes that a corporation has a basic obligation not only to fulfil its economic and legal responsibilities, but also the socially accepted norms of ethical responsibilities, and that this belief forms the underlying foundation of all corporate decision-making and business conduct.

At SK Corp., management ethics refers to active implementation of SKMS (SK Management System) in our everyday business activities. SKMS is our basic management philosophy, the objective of which is to create value for our stakeholders and contribute to maximizing happi-ness for the community at large.

SK Corporation (2007)

The following diagram illustrates SK Corporation’s management ethics:

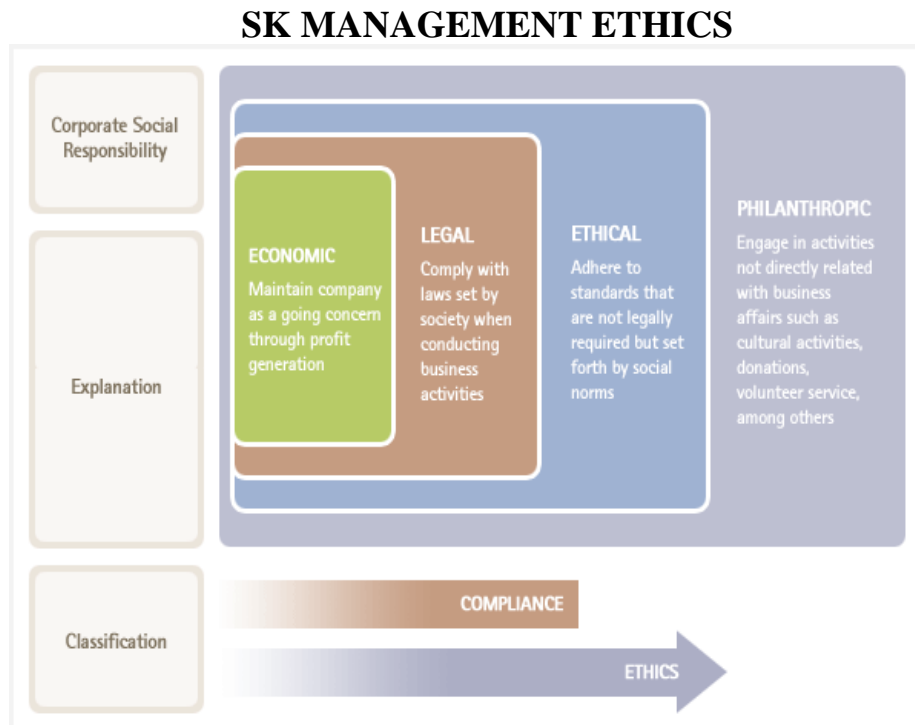


Figure 2.4: SK Corporation’s management ethics.

(Source: SK Corporation, 2007)

Origin Energy's code of conduct is:

Origin Energy expects all Directors, employees and other persons that act on behalf of the company to conduct themselves in accordance with Origin Energy's Commitments, Principles and Values and its policies that guide business conduct.

The Code of Conduct details some key policies and procedures which govern business conduct. These include:

- *Equal Employment Opportunity (EEO) and Harassment / Discrimination Prevention*
- *Health, Safety and Environment*
- *Dealing in Securities*
- *Giving and Receiving of Gifts*

Origin Energy (2007)

Murray and associates values are:

- *To increase shareholders return on their investment.*
- *To benefit our customers from our business.*
- *To ensure the communities in which we operate value our presence.*

Murray and Associates (2007)

It can be seen from the values of these three companies that the financial growth is not the only important factor for CEOs to consider. Consideration for the safety and welfare of customers, employees and the community should be considered. Also the impact of development and operations on the environment should be considered. All of these factors will be covered throughout this report.

CHAPTER 3 METHODOLOGY

The first step for this research project was to gather the necessary resources in order to obtain accurate data which could be used to address the problem outlined in section 1.3. The resources acquired were for two main parts of this project:

- Literature review
- Questionnaire

A literature review had to be carried out in order to identify how other engineers have made it to senior management positions. It also investigated what traits were common among successful leaders. The information was gathered from various books, magazines and websites.

The questionnaire was drawn up using the information gathered in the literature review. It consisted of two parts:-

- Part A – Short answer section.
- Part B – Ranked section.

The questionnaire required resources different to those used in the literature review. The feedback from the questionnaire was crucial to the accuracy of this report so it needed to come from corporate senior managers with an engineering background and engineering human resource managers responsible for hiring senior managers. The senior managers had to come from a spread of international, nation and local companies in order to see if there is any difference in the leadership skills required by varying sized companies.

The following personnel were selected and agreed to participate in the questionnaire:-

SK Corporation (international company)

- Mr Woan Sik Kim
(Vice President Utilities Team)
- Mr Hae Ryong So
(Vice President Maintenance Team)

Origin Energy (national company)

- Mr Ian Cooke
(Operations Manager)
- Mr Martin Riley
(CSG and Oil & Gas Production Manager)

Murray and Associates (local company)

- Mr John Campbell
Principle consulting land surveyor
- Mr Ian Smith
Principle consulting land surveyor
- Mr Andrew Campbell
Special Projects manager

External Recruitment Agencies

Hays Recruitment Agency

- Mr Ian Flanagan
Operations Manager (Brisbane)

Mining People International

- Mr Stuart Merrick
Operations Manager (Perth)

Refer to Appendix A for the candidates completed questionnaires.

The feedback from these candidates then had to be analysed. The analyses of the two parts of the questionnaire were handled in different ways. The themes of the responses given in the short answer section (Part A) were summarized. Graphs were generated for the ranked section (Part B). Responses were separated into company classifications for both sections of the questionnaire. This enabled easy comparisons of responses given by different sized companies.

After analysing the responses a number of findings could be reported. Finally, recommendations on these findings are made. Refer to Appendix B for a flow chart of the methodology used.

CHAPTER 4 ANALYSIS

4.1 Part A – Short Answer

In order to fully examine and analyse the responses it is essential to summarize the important themes expressed by each candidate for each of the short answer questions. The themes will be separated by the company so they are able to be compared easily. They will be separated into the following categories:

- External – Responses given by external recruitment agencies.
- International – Responses given by international companies.
- National – Responses given by national companies.
- Local – Responses given by local companies.

The following is the analysis of each question in the survey followed by the main themes expressed by the candidates.

4.1.1 Engineers as senior managers

**Question 1: Do engineers make good candidates for senior management roles?
Why or why not?**

EXTERNAL –

- Good engineers are not always good managers. Generally they are but each case needs to be judged on its merits.
- Highly competent technical people should not be pushed into management roles when they are more comfortable in their technical world.

INTERNATIONAL –

- Yes they are because they build technical skills and also often have to make on the spot decisions.

NATIONAL –

- Some are interested only in the purely technical aspects of engineering while others prefer management.
- They have a good aptitude for both the technical and commercial side of the business.

LOCAL –

- They tend to be analytical in nature which is important for a manager and helps them manage situations which occur.
- They need more training such as a degree in economics/administration.

4.1.2 Traits of a good leader

Question 2: What traits make a good leader?

EXTERNAL –

- To get people to do what you want them to do.
- Lead by example.

INTERNATIONAL –

A good leader should:

- be honest
- be competent
- be forward-looking
- be inspiring
- be fair-minded
- be ambitious
- be broadminded
- be courageous
- be straightforward
- be imaginative
- possess good leadership skills

NATIONAL –

A good leader should:

- have good communication skills
- be a good people motivator
- have a willingness to empower others
- Both front and tail leaders can be effective. Front leaders make a path for others to follow while tail leaders lead from behind encouraging those being led.

LOCAL –

A good leader should:

- understand people and what motivates them
- having an analytical mind
- have comprehensive industry knowledge to create trust and confidence
- be honest and have integrity
- have good communication skills
- be approachable and understanding
- know when difficult decisions need to be made
- have an understanding of company finance.

4.1.3 Learning leadership skills

Question3: How can one help shape leadership skills?

EXTERNAL –

- Through leadership courses then using what has been learned.

INTERNATIONAL –

- Through direct and indirect influences. Direct influences are things such as lectures and courses while indirect influences are things such as communicating with colleagues.
- By being empowered by others.

NATIONAL –

- Through mentors and managers.
- Taught by example.

LOCAL –

- Through watching others who exhibit these skills, including industrial, sporting and political leaders.
- You only have to listen to those who are already great leaders.

4.1.4 Life experiences

4) Can life experiences help develop leadership skills?

EXTERNAL –

- Life experiences are the best way of learning by observing others behaviour.
- Adversity of successes in other areas of life can be useful.
- Sport can also expose one to leadership opportunities.

INTERNATIONAL –

- Being part of a family and raising children helps develop leadership skills.

NATIONAL –

- Life experiences make us who we are.
- There are a number of parallels in managing a family and a team of people at work.

LOCAL –

- Meeting and watching great teachers and leaders helps develop leadership qualities.
- Going through difficulties also contribute to being able to make hard decisions.
- Schooling roles and early employment help shape our leadership and interpersonal skills.

4.1.5 Conceptual and analytical skills

Question 5: How does one gain conceptual and analytical skills? Do you think these skills can be taught effectively?

EXTERNAL –

- Can be natural or taught.
- Everyone learns these skills in early life as part of the education cycle.

INTERNATIONAL –

- Basic knowledge/theories can be taught but using them is learned by watching your seniors.
- Can be taught by providing actual experience along with theoretical study.

NATIONAL –

- Can be taught through a combination of courses and on the job training.
- Proper training can enhance these skills.
- Can be gained through life experiences.

LOCAL –

- These skills are somewhere within you.
- They can't be taught.
- Skills can only be improved not instilled in a candidate.

4.1.6 Functional knowledge

Question 6: How important is functional knowledge, such as accounting, finance, marketing and human resources, for senior managers to possess?

EXTERNAL –

- These are important ingredients to a successful senior manager.
- They need to have some knowledge of these things and also access to specialists in these fields.

INTERNATIONAL –

- Overall competency in these areas is essential.
- Without being familiar with such knowledge a senior manager wouldn't even be able to begin his main work.

NATIONAL –

- Senior managers usually do an MBA or a similar course to balance the technical aspects with the broader management skills.
- A well rounded knowledge in all these attributes will assist senior management.

LOCAL –

- Important, but there is no need for academic qualifications in these areas.
- You must comprehend all these things and be able to draw on the appropriate skilled staff.

4.1.7 Technical skills

Question 7: How important are technical skills for upper managers to possess?

EXTERNAL –

- A basic understanding is all that is needed.
- They are not important as senior managers will have specialists available to them.

INTERNATIONAL –

- Not so important but a basic understanding is useful.
- They are important so as to be able to communicate with others and to be able to make decisions on their own and not be influenced by others.

NATIONAL –

- This knowledge will benefit the decision making process.
- They don't need a broad range of skills if they have an experienced team working for them.

LOCAL –

- Lower order priorities that can be delegated.
- Important only for gaining respect of employees.
- It is difficult to instruct people to perform tasks which you cannot perform yourself. This knowledge is important to guard your credibility.

4.1.8 Change management

Question 8: Is the ability to initiate change within your organisation an important skill for a leader to possess?

EXTERNAL –

- Change management is becoming more and more important. While it is advantageous to be able to do this, it is a specialised area and sometimes requires a specialized change manager.

INTERNATIONAL –

- Creating innovation is an important skill.

NATIONAL –

- If you are a functional leader this skill is not important.
- It is important to be able to look for minor changes to create a competitive edge.

LOCAL –

- No, because all necessary change should be obvious.
- Yes, you have to make the employees want the change and not to be seen as distant, removed or aloof.

4.1.9 Planning change

Question 9: How does one come up with plans for change or the direction you would like the company to be going?

EXTERNAL –

- Through strategic planning preferably coming from within the team. The plan is then implemented and reviewed at various stages.

INTERNATIONAL –

- People affected by the change will instinctively reject it. This should be considered right from the outset. People under the change should find the advantages of change by themselves making the transition easier. The schedule should be strictly observe and finished on time.
- Coming up with an idea is the hardest part. Always consider a different point of view and listen to as many different opinions as possible but avoid being bias.

NATIONAL –

- Always look for ways the company can improve.

LOCAL –

- Keeping up with technical and technological changes evoke change, without even thinking about it.
- The industry must keep up with the evolution of the dynamics of business, industry and government sectors.

4.1.10 Leadership programs

Question 10: Does your company have a program to help identify and develop leadership skills in employees? Is this important or can talent sourced from elsewhere?

EXTERNAL –

- This is ideal but depending on the size of the company managers may have to be sourced from outside the company.

INTERNATIONAL –

- We have a program open to every employee providing theoretical studies along with accounts of real life experiences.
- Outsourcing is an option but internal promotion is a much better option where possible.
- It is important and some employees attend MBA and education programs organised by the company every year.

NATIONAL –

- Yes, it does but it is not effective. It is usually who you know and what you know.
- We have 'high potential' people identification programs and supervisory and management development programs. These programs are important in a tight market for people.

LOCAL –

- No program exists.
- Senior directors observe leadership abilities of workforce.
- Talent should be encouraged internally if practical.
- These skills are developed within the company by giving individuals the opportunities to lead work groups.
- These skills are developed as orders come from both directions, both upper and lower tiers of the company.

4.1.11 Being motivated

Question 11: Obviously senior managers are highly motivated. How should one achieve such motivation?

EXTERNAL –

- A good leader should be personally motivated.

INTERNATIONAL –

- You must have a clear target for what you want out of life. This will give you the motivation you need to be a leader.

NATIONAL –

- Important leaders keep a motivating environment in the company.
- Motivation is driven by those above.

LOCAL –

- I get inspired by the drive of others.
- You cannot have lasting motivation from third parties. This can be seen in football dressing rooms before important games.

4.1.12 Motivating others

Question 12: It is also important that senior managers motivate teams to achieve goals. How should one go about motivating people around them?

EXTERNAL –

- Set realistic targets for groups so they are focused on an objective.

INTERNATIONAL –

- Communicate well describing a bright future and be self-confident.
- Offer an award, such as a bonus and additional holiday.
- Give clear directions and appropriate advise.
- Always listen carefully making sure you understand your teams intentions and needs.
- Involve your team as much as possible and remind them of the spirit of teamwork.

NATIONAL –

- Leading from behind is effective by talking and encouraging people about their work.
- Ensure good work is noted and rewarded.

LOCAL –

- Make sure people understand that their success depends on the success of the company and the company's success depends on them also.
- Encourage continuing education and personal improvement.
- Lead by example and integrity.

4.1.13 Recognition

Question 13: Is it important to surround yourself with successful people in order to get recognition for your achievements?

EXTERNAL –

- Yes.

INTERNATIONAL –

- Yes. It is also a way of getting self-confidence in your daily life.
- It is important but what you do and how you work is more significant.

NATIONAL –

- Teamwork is the most important thing for the company.
- Getting the right mix of people is the most important thing.

LOCAL –

- No, employees need to be diligent. There is no need to be assessed as being ‘successful’.
- No it’s always better to gain recognition together with your peers.
- No, but you won’t get far without successful people within your business.

4.1.14 Self-confidence and public speaking

Question 14: How can one develop their self-confidence and public speaking abilities? Are these qualities important in leadership roles?

EXTERNAL –

- By being given responsibilities and encouragement.
- Confidence is the key in a leadership role.
- Training and lots of practice helps develop these abilities.
- An ability to act the part also helps a lot.

INTERNATIONAL –

- You must practice and get as much experience as possible on public speaking.
- Join associations which give the opportunity to speak in public and gain encouragement from doing so.
- These qualities are very important.

NATIONAL –

- It comes with continual practice and experience.
- These qualities are very important.

LOCAL –

- If you have them, use them. Otherwise you have to be smarter in other areas.
- It is important and engineers can struggle in this area.
- Analytical people can be less creative and more introverted which makes public speaking difficult.
- Join public speaking groups to gain experience.

4.1.15 Decisive leadership

Question 15: How important is it for a leader to be decisive and to be able to delegate tasks effectively?

EXTERNAL –

- Extremely important. If the leader doubts him/herself, nobody trusts what they are doing is correct.
- By delegating you give others a chance to grow and develop their skills.

INTERNATIONAL –

- It's important, but more importantly a leader should be able to find suitable people in their team to finish the task effectively.
- A leader should not be easily influenced in the wrong direction. One must be flexible on certain occasions though.

NATIONAL –

- It's very important. You must give clear direction to people and empowerment and delegation is essential for successful leadership.

LOCAL –

- 100% without fail. A good manager can distribute the work effectively to the people most capable.
- If you can't delegate you won't get far.
- Decisions must be thought out beforehand and made promptly.

4.1.16 Ethics

Question 16: Should a leader be ethical in his/her affairs? What ethical traits should they exhibit?

EXTERNAL –

- Leaders lead by example.
- A high level of personal moral ethics sets the stage for others to model themselves on.

INTERNATIONAL –

- Leaders should be ethical – open, honest, trustworthy and show respect to others.
- The most important traits are honesty and fair-mindedness.

NATIONAL –

- Yes. They should follow ethical standards expected by the community – fair, equal opportunity and work within legal framework.

LOCAL –

- Honesty and diligence is respected. Respect then has flow on effects.
- One should display the same ethics they wish their colleagues to work by.
- A leader should be honest, fair, and open to change and should accept their mistakes.
- Ethical is a misused word in professions. One could be considered unethical within their profession – yet they could be extremely honest. Honesty is far more important.

4.1.17 Global knowledge

Question 17: Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

EXTERNAL –

- That depends on the role of the leader.

INTERNATIONAL –

- Not necessary for a local company.
- It is important for national and international companies.

NATIONAL –

- An all round knowledge is useful as most businesses are becoming increasingly global.
- They should understand the people they are dealing with.

LOCAL –

- If you are dealing with people of any of these groups then you must have some knowledge of them.
- It would be useful in this day and age where skill shortages are being experienced. Employing overseas workers is becoming a reality for a lot of businesses and knowing your workforce is essential.
- Lessons can be taken from these categories as well as history.

4.1.18 Leadership skills for different sized companies

Question 18: What skills should a senior manager of a national company possess over and above that of a senior manager of a local company?

EXTERNAL –

- Knowledge of each state's politics, taxes, major business leaders, customers, etc.

INTERNATIONAL –

- Should have a wider vision.
- Should be more competent and perceptive and have a stronger forward-looking ability.
- Should have better public speaking ability, business skills and organization skills.
- One should be more ethical and trustworthy.

NATIONAL –

- Knowledge of differences in state economies, politics and cultures.

LOCAL –

- Should be no difference.
- Technical skills become less important while people management, marketing and international business skills would become more important.
- You would need to surround yourself with successful people.
- Must be able to communicate to the business world on a national level.

Question 19: What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

EXTERNAL –

- Knowledge of exchange rates and their impact on a business, knowledge of the culture of the customers.

INTERNATIONAL –

- Language skills and global leadership skills.
- They must be self-confident and persuasive.
- Wide and far-reaching vision.
- Must be able to manage people with different cultures and backgrounds.
- Communication ability must be very good.

NATIONAL –

- Should possess knowledge of global economics, political climate and culture.

LOCAL –

- Possibly a second language.
- Greater knowledge of market forces and customs and languages.
- Ability to control a core group of national or regional managers.

Question 20: How do you think leaders of local, national and international companies differ?

EXTERNAL –

- There is no difference.
- A broader overall sense of the business arena, cultures, local and international issues.

INTERNATIONAL –

- Basic duty is the same – to survive from the competition and acquire benefits. Vision varies with international companies having the widest.
- One should have all the leadership skills no matter what the size of the company.

NATIONAL –

- There is no difference.
- Similar personal traits but knowledge base may differ.

LOCAL –

- Same core skills but differing market environments.
- No difference in character but a difference in the people they communicate with and how they go about that.

4.2 Part B – Ranked Section

Graphs will be drawn for the ranked section in order to analyse the responses given.

The responses will be separated by company size so they can easily be compared. They will be separated into the following categories:

- External – Responses given by external recruitment agencies.
- International – Responses given by international companies.
- National – Responses given by national companies.
- Local – Responses given by local companies.

Leadership Skills

4.2.1 Analytical Skills

Most respondents see this skill as important with over 90% agreeing that it is an important, very important or crucial skill for a manager to have (refer fig 5.1).

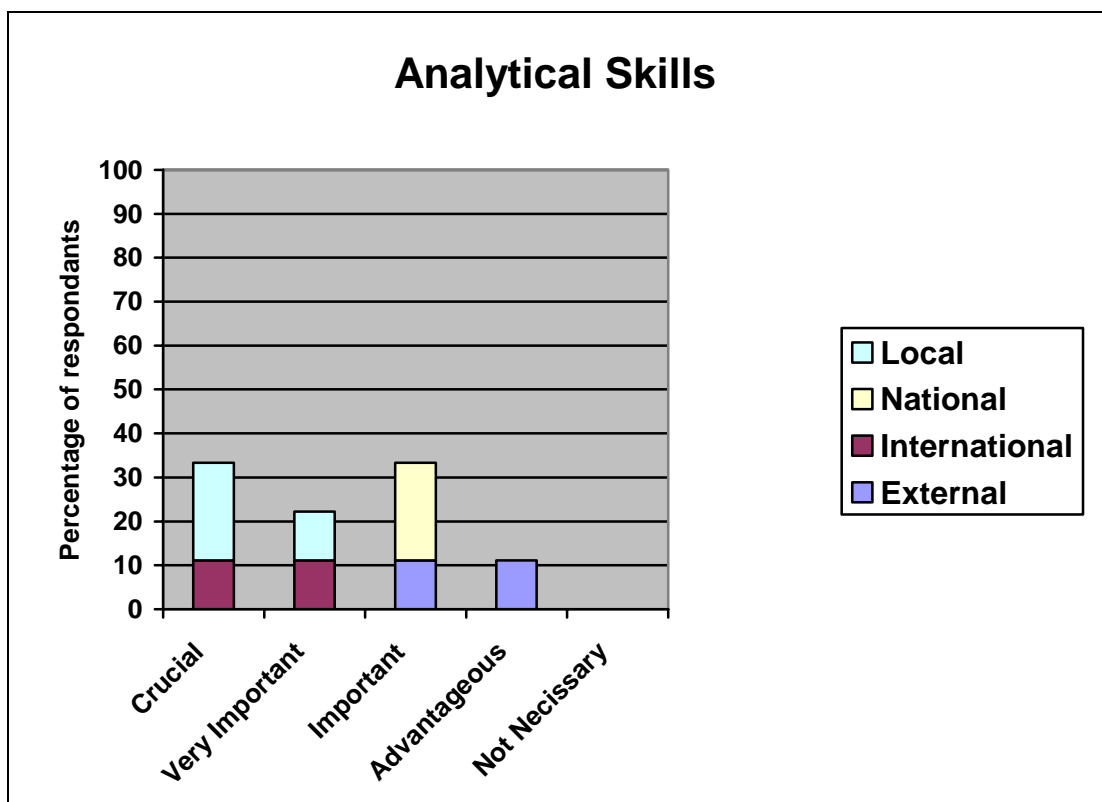


Figure 4.1: Importance of analytical skills to a senior manager.

4.2.2 Conceptual Skills

Most respondents see this skill as important with over 90% agreeing that it is an important, very important or crucial skill for a manager to have (refer fig 5.2).

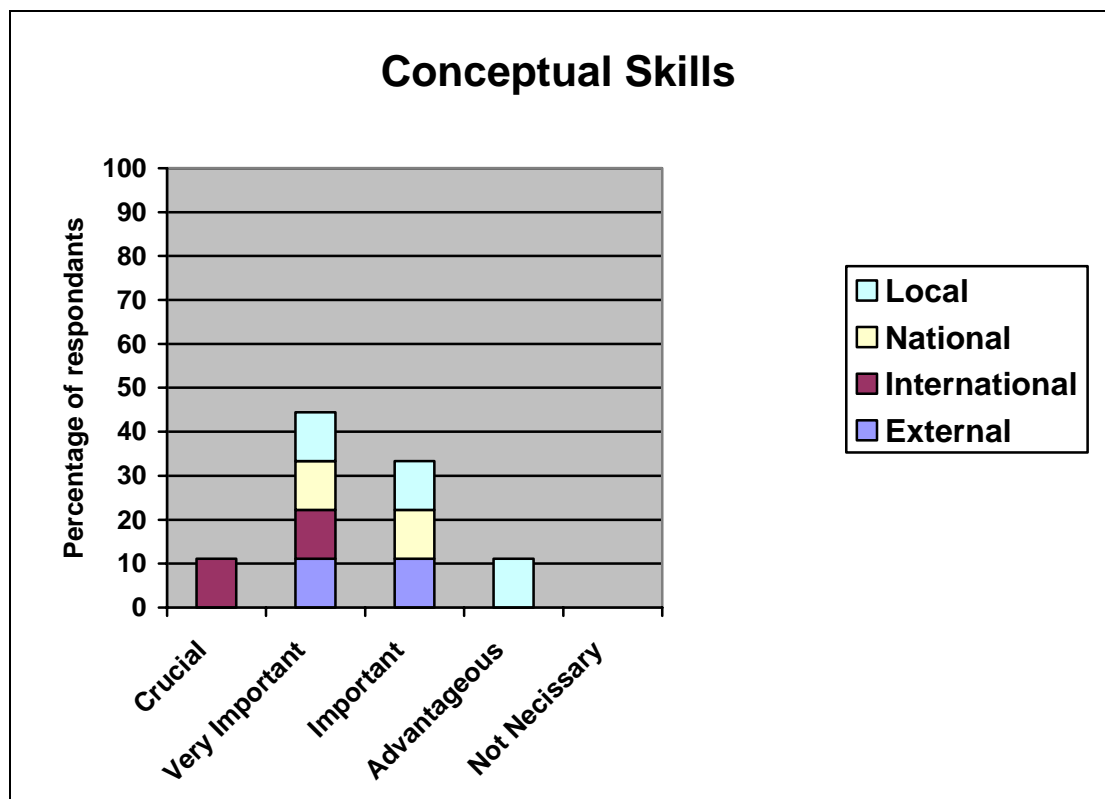


Figure 4.2: Importance of conceptual skills to a senior manager.

4.2.3 Technical Skills

Approximately 65% of respondents think technical skills are important, very important. Technical skills are ranked the highest by local companies. This is probably due to the fact that senior managers of smaller companies are more likely to be involved in the day to day activities of the business. As the size of the company increases, the importance of these skills tends to decrease. Senior managers of larger companies are less likely to be involved in the day to day activities of the business and therefore are reliant on these skills (refer fig 5.3).

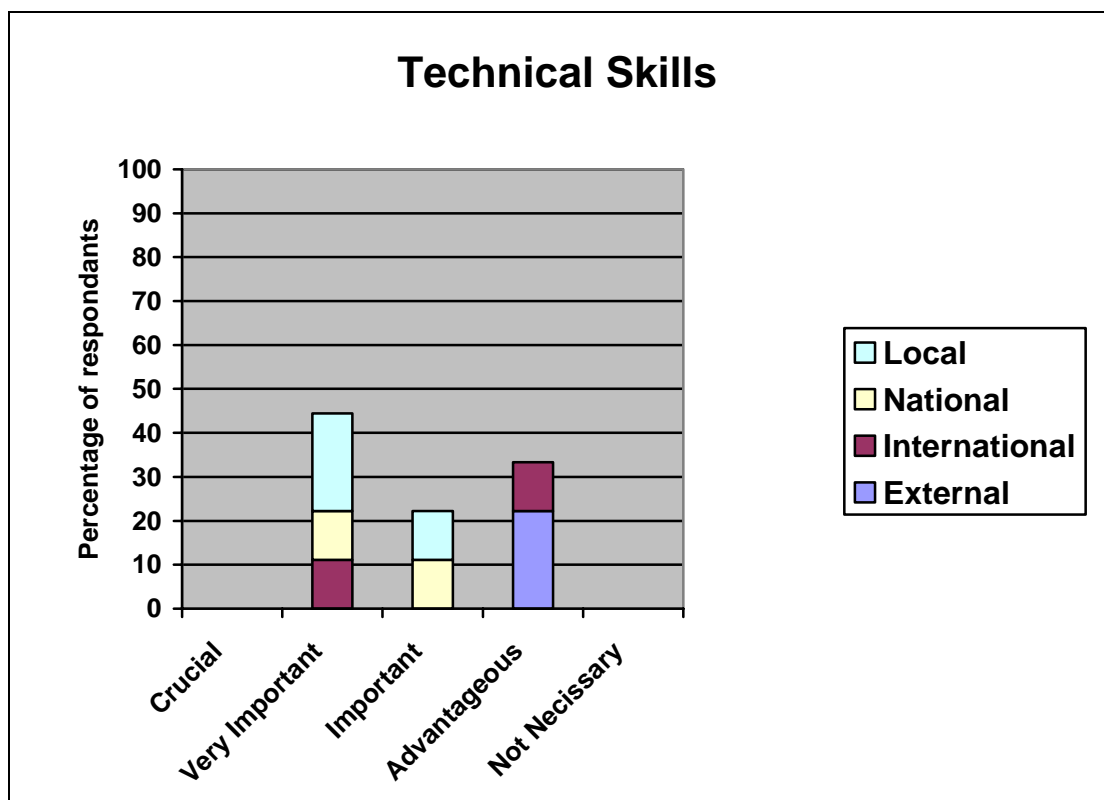


Figure 4.3: Importance of technical skills to a senior manager.

4.2.4 Interpersonal Skills

About 70% of respondents think interpersonal skills are important, very important or crucial. This set of skills ranks highly with international companies. They are required to deal with unions more frequently than smaller companies. Generally the managers are also required to lead larger teams which require more of these skills (refer fig 5.4).

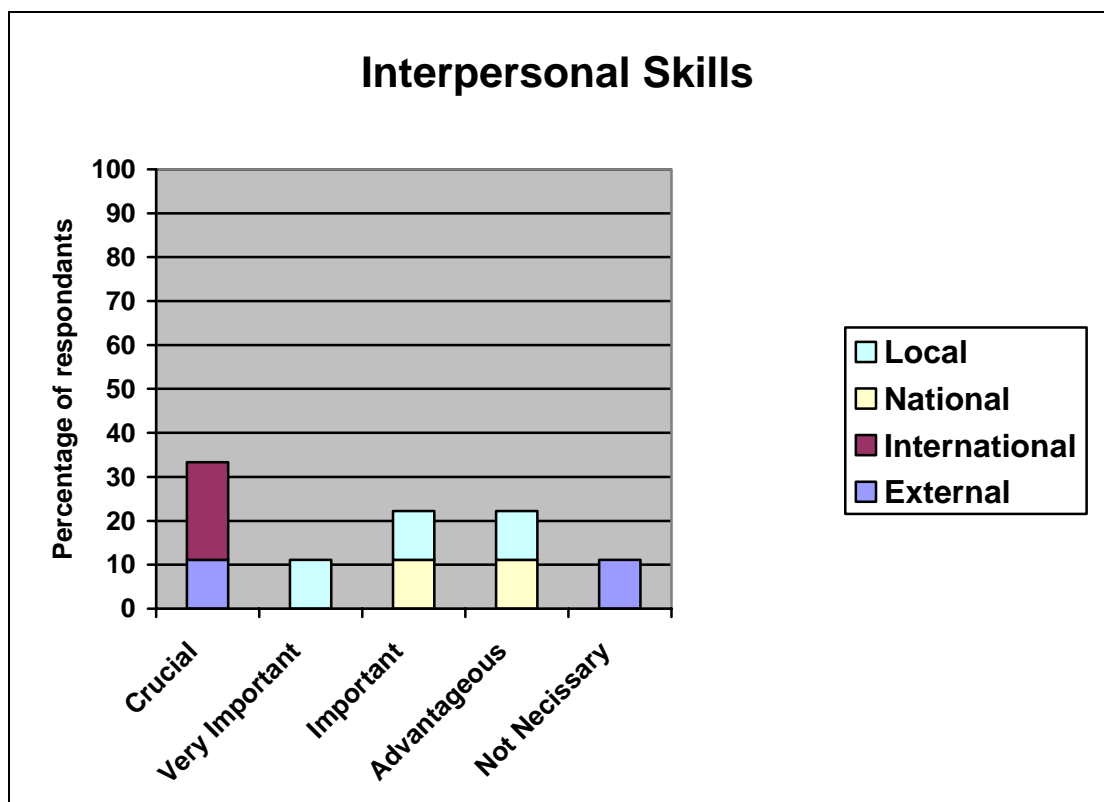


Figure 4.4: Importance of interpersonal skills to a senior manager.

4.2.5 Public Speaking Skills

Approximately 90% of respondents think public speaking skills are important, very important or crucial. This ability ranks highest with international companies because their managers are constantly in the public eye. International company directors are expected to speak to a very large audience, whereas smaller companies usually do not have such a large audience (refer fig 5.5).

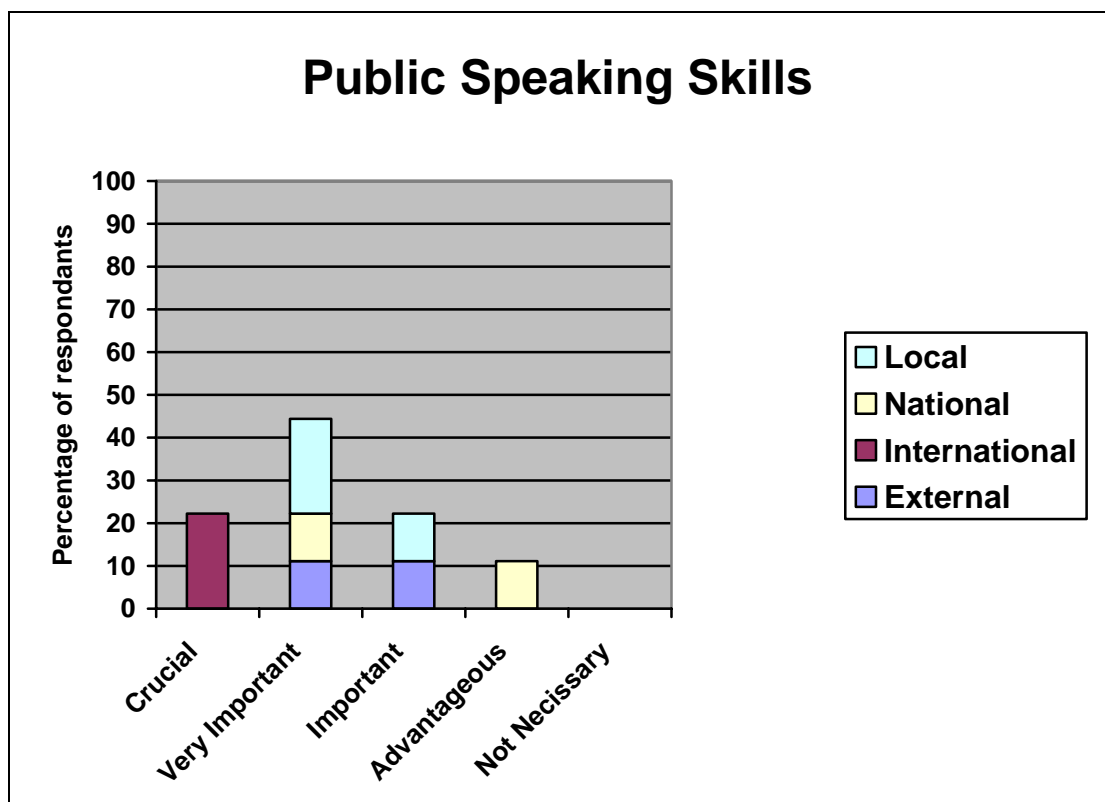


Figure 4.5: Importance of public speaking skills to a senior manager.

4.2.6 Organisational Skills

Approximately 90% of respondents think organisational skills are important, very important or crucial (refer fig 5.6).

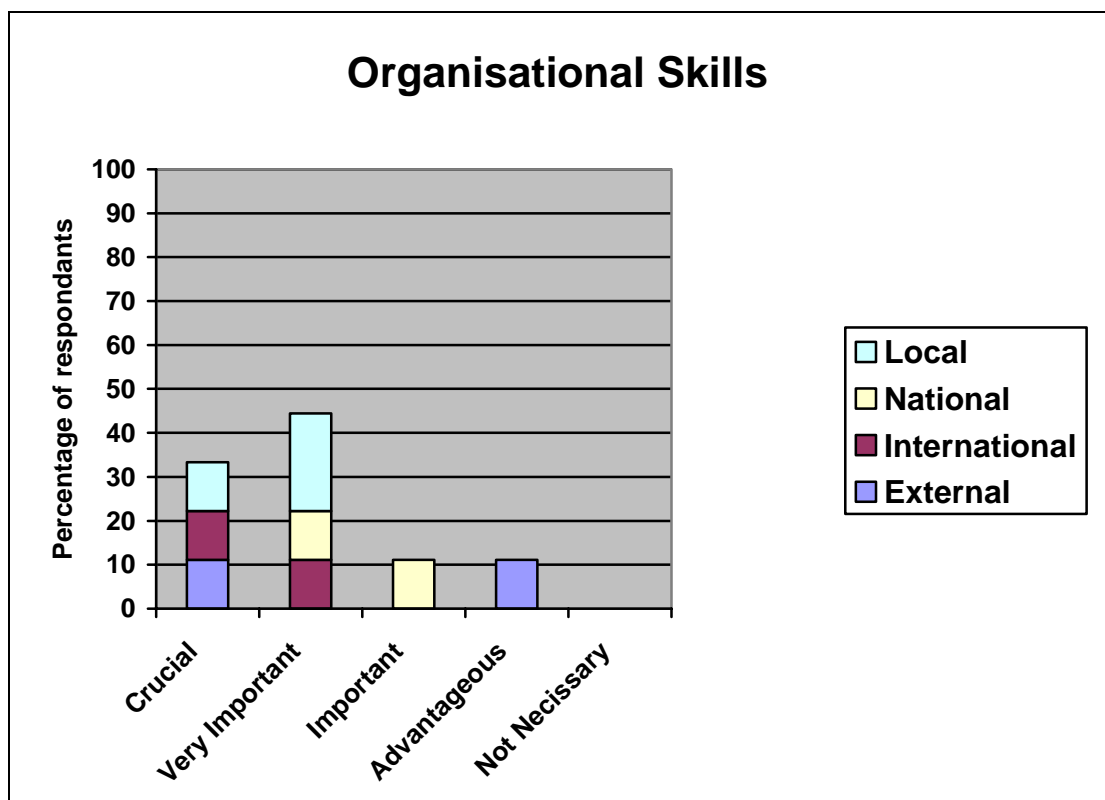


Figure 4.6: Importance of organisational skills to a senior manager.

4.2.7 Business Skills

Approximately 90% of respondents think business skills are important, very important or crucial (refer fig 5.7).

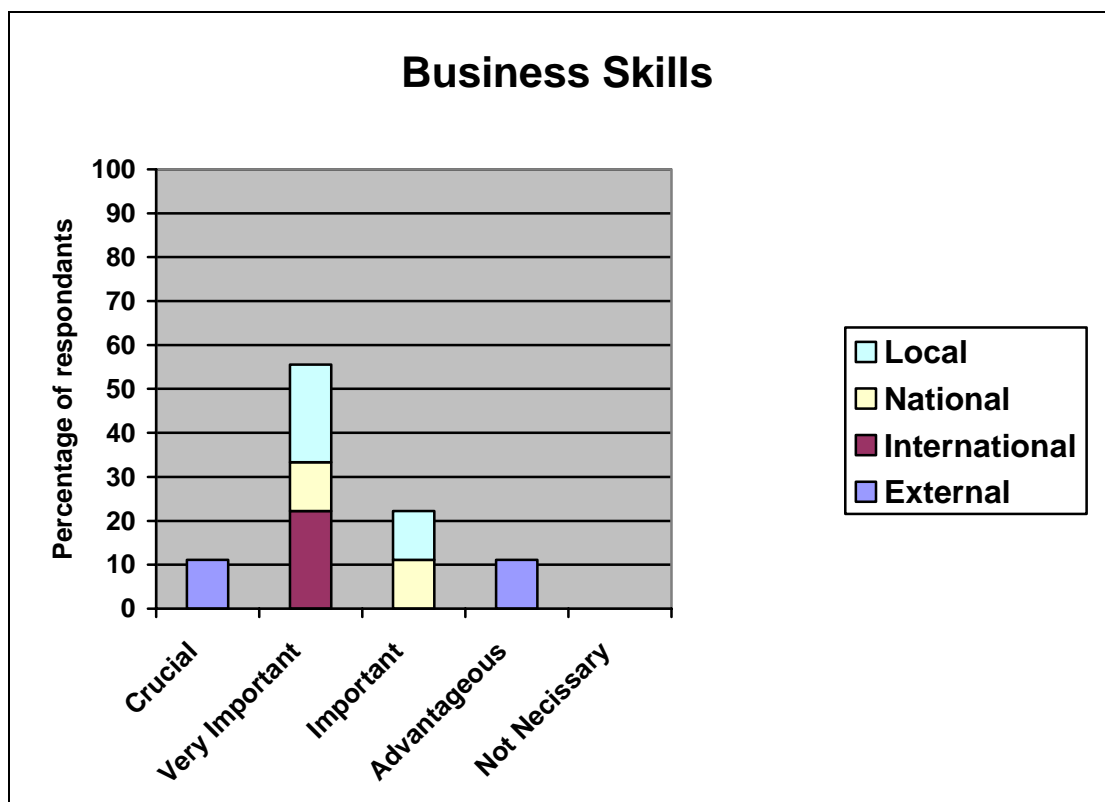


Figure 4.7: Importance of business skills to a senior manager.

4.2.8 Global Leadership Skills

Approximately 90% of respondents think global leadership skills are important, very important or crucial. Ranks very highly with international and external recruiters as you would expect. More and more companies require leaders with these skills. Interestingly local companies still ranked these skills as important (refer fig 5.8).



Figure 4.8: Importance of global leadership skills to a senior manager.

4.2.9 Management Experience

Approximately 90% of respondents think management experience is important, very important or crucial. Again these are highest among international companies. They expect senior managers to have had some training in lower level management before reaching more senior positions. Local and national companies may be more willing to promote directly to senior positions without much previous experience (refer fig 5.9).

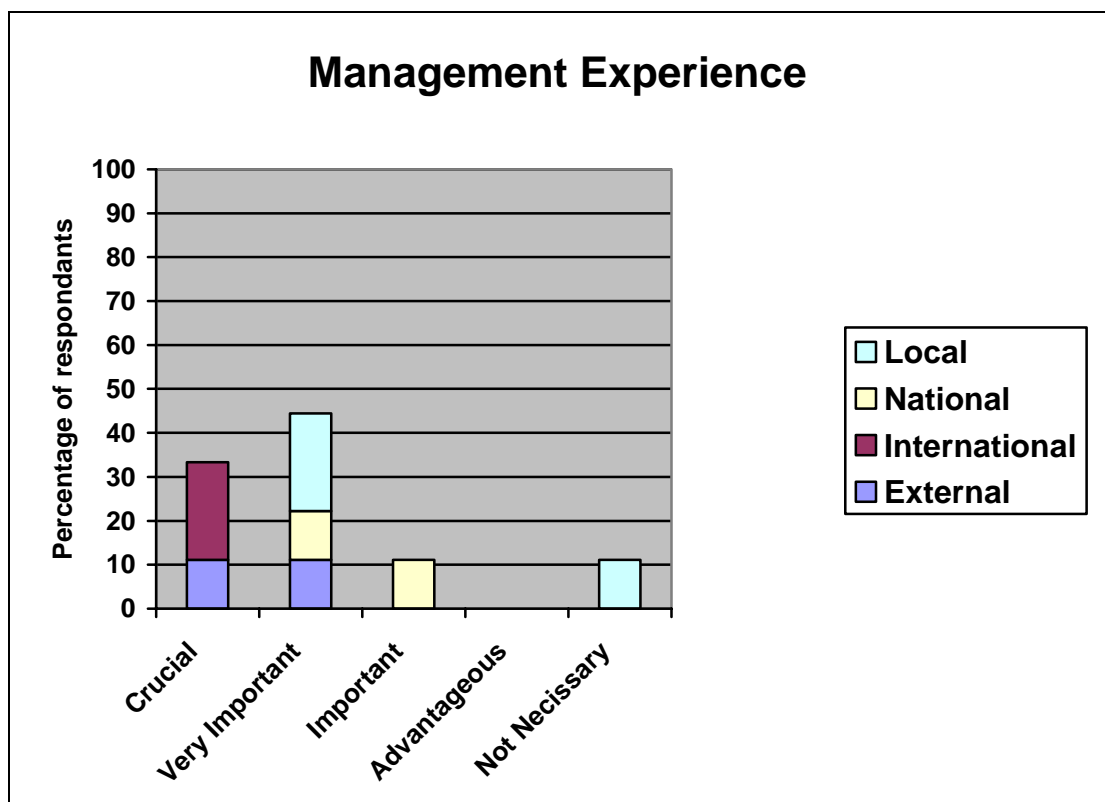


Figure 4.9: Importance of management experience to a senior manager.

Leadership Traits

4.2.10 Decisiveness

Approximately 90% of respondents think being decisive is important, very important or crucial. This trait ranks highest with local companies. They may be more likely to have to make decisions on their own whereas larger companies may have teams of people to help make important decisions (see fig 5.10).

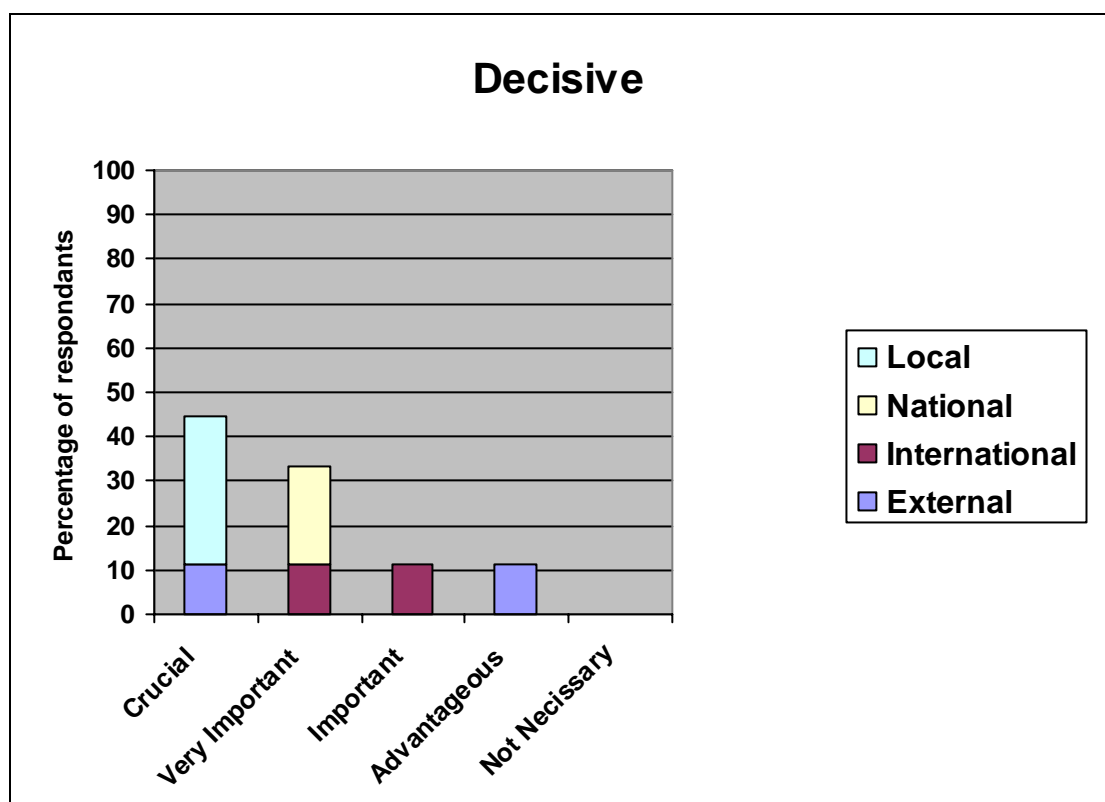


Figure 4.10: Importance of being decisive to a senior manager.

4.2.11 Ambitiousness

Approximately 90% of respondents think being ambitious is important, very important or crucial. This trait ranks highest with international companies probably reflecting a greater amount of competition within these companies. One has to be more ambitious as the competition increases (refer fig 5.11).

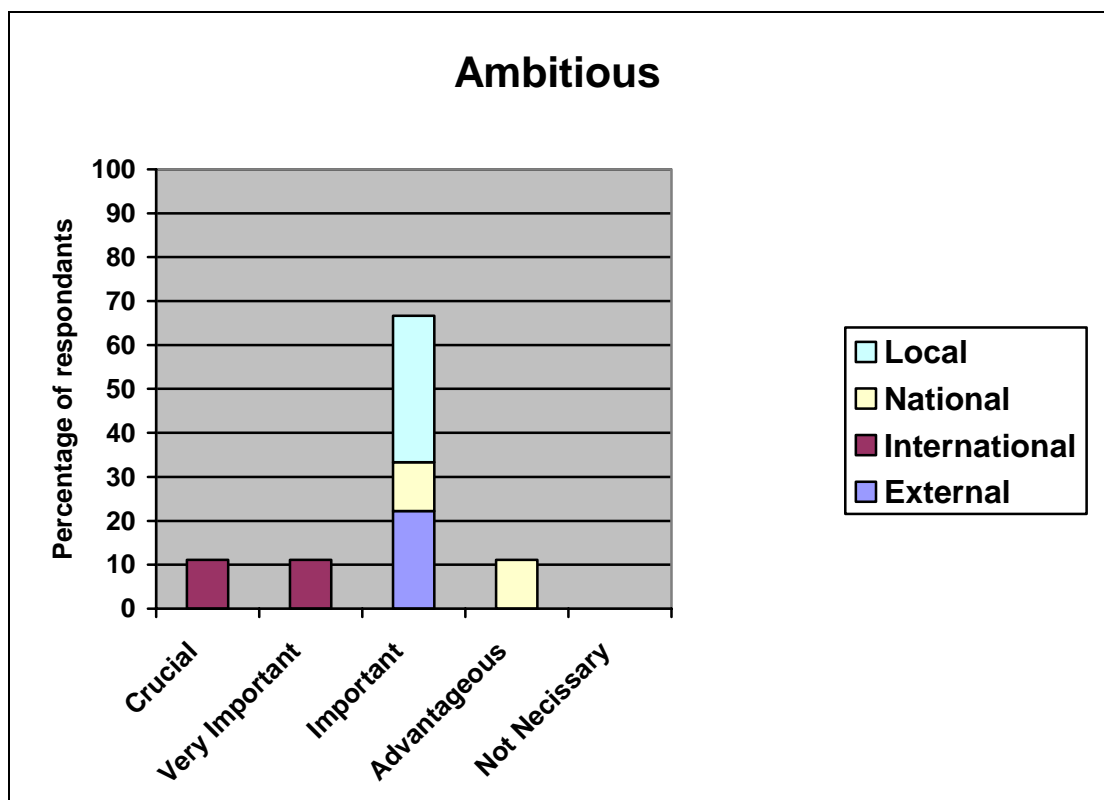


Figure 4.11: Importance of being ambitious to a senior manager.

4.2.12 Self-confidence

Approximately 90% of respondents think being self-confident is important, very important or crucial. Again this trait ranks highest with international companies. This may be because managers of international companies are required to instruct a larger number of people and attend more meetings with other managers (refer fig 5.12).

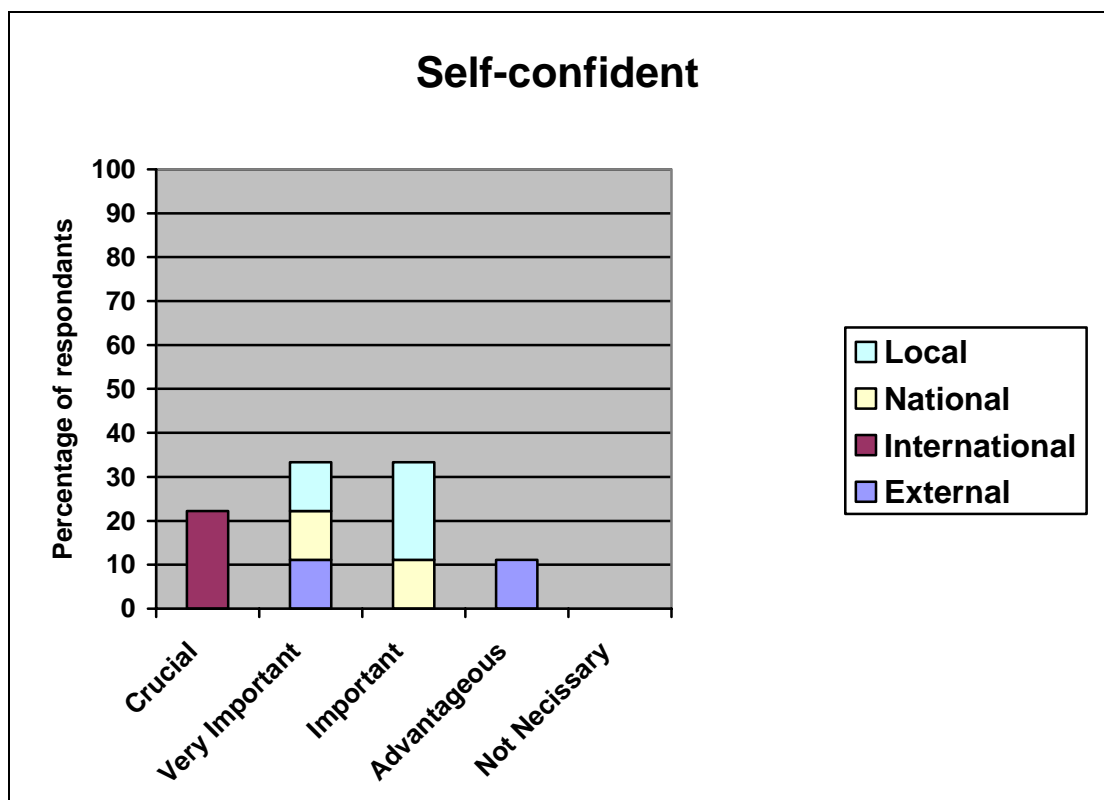


Figure 4.12: Importance of being self-confident to a senior manager.

4.2.13 Energy level

Approximately 90% of respondents think being energized is important, very important. This trait is not considered crucial however it is still important (see fig 5.13).

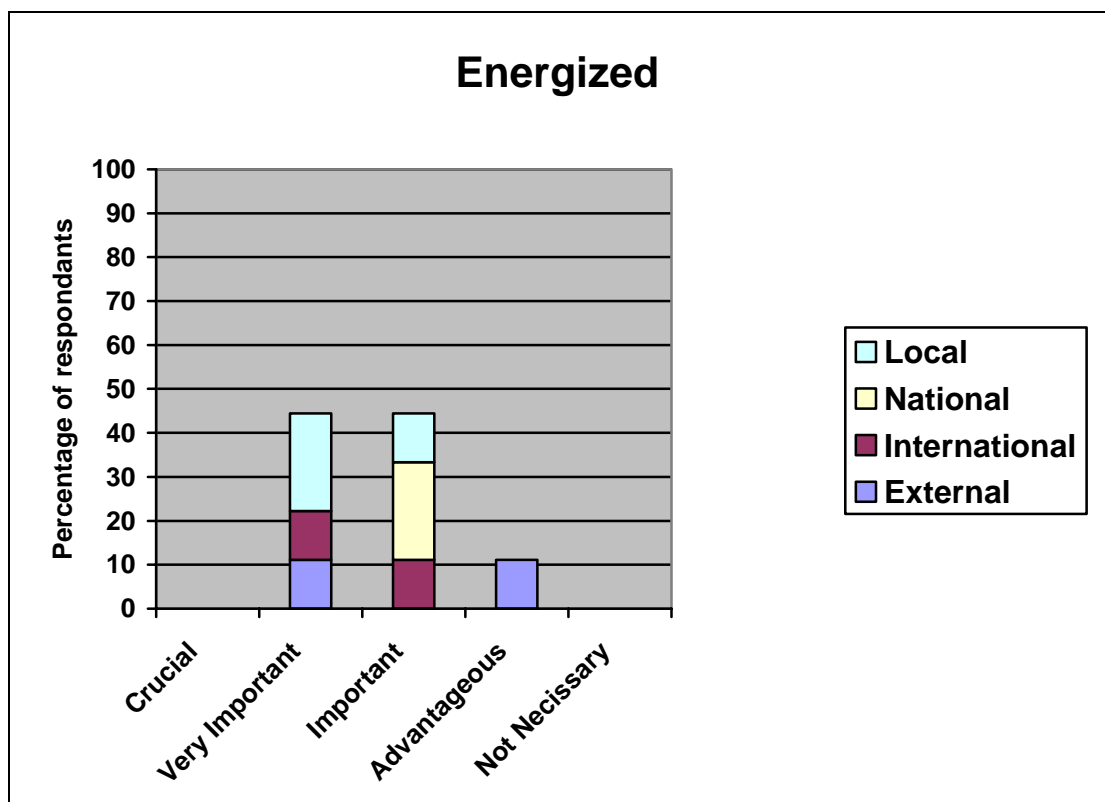


Figure 4.13: Importance of being energized to a senior manager.

4.2.14 Persuasiveness

All respondents think being persuasive important, very important or crucial. This trait ranks very highly no matter what size of company you are working for (see fig 5.14).

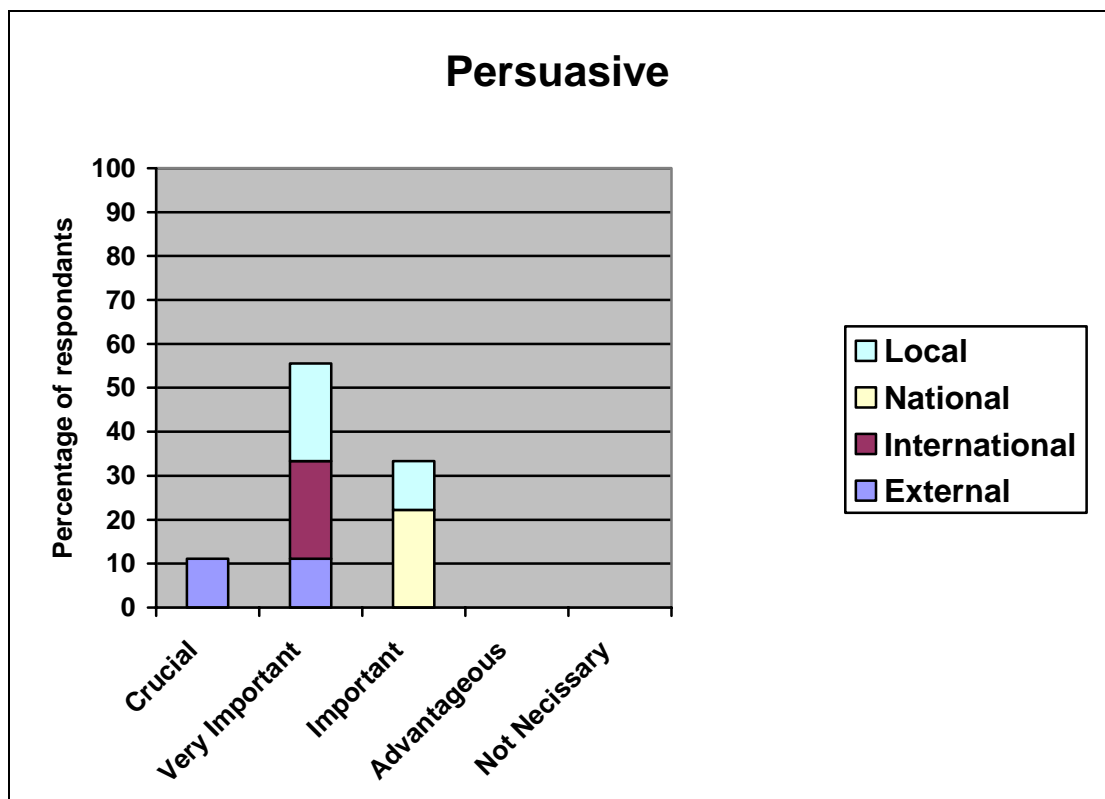


Figure 4.14: Importance of being persuasive to a senior manager.

4.2.15 Ethics

Approximately 90% of respondents think being ethical is important, very important or crucial. More interestingly, about 40% of respondents consider this trait as crucial. A company's reputation is very important. They must be seen by the public as responsible, caring and competitive. Without this the success of the business is certainly in jeopardy. That's why all companies expect their leaders to act ethically and why this trait ranks so highly (refer fig 5.15).

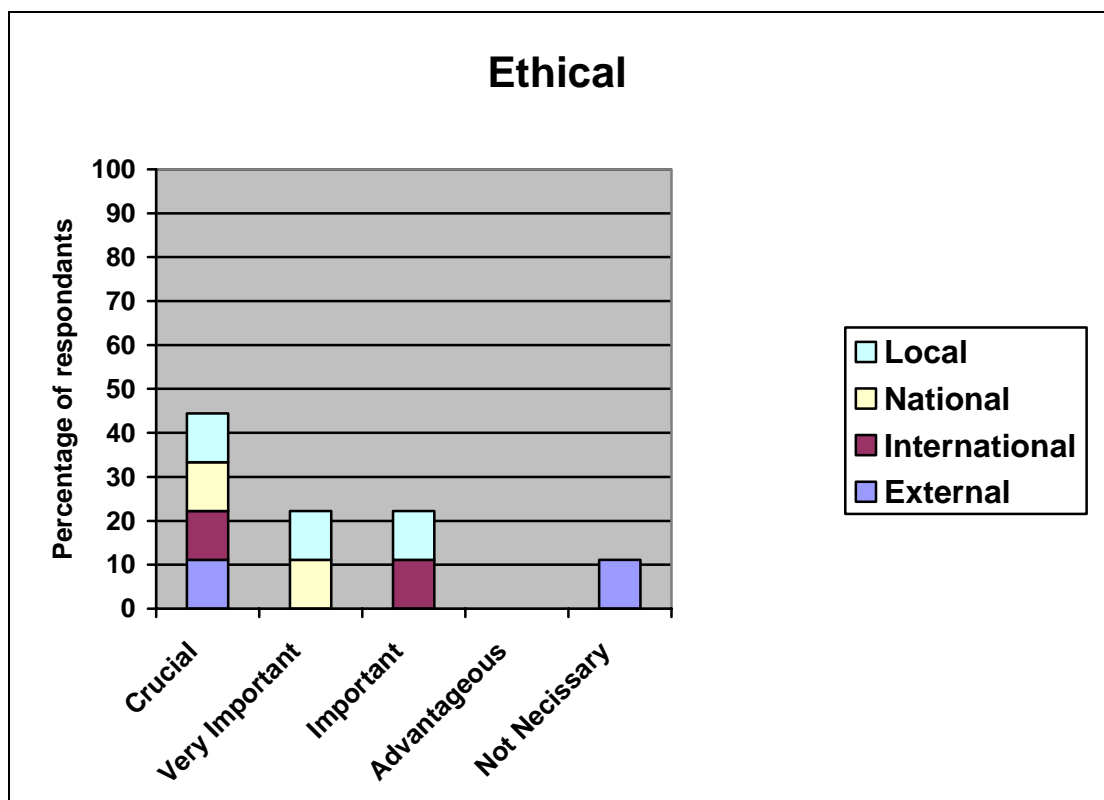


Figure 4.15: Importance of being ethical to a senior manager.

4.2.16 Trustworthiness

Approximately 90% of respondents think being trustworthy is important, very important or crucial. In fact about 75% consider this trait crucial to a leader. This is probably due to the need for companies to attract and maintain highly skilled workers. It is essential to be seen as trustworthy in order to gain respect from workers. This helps keep them content with their job and helps retain staff. Clients also expect to be dealt with fairly. If they are not they will not do business with your company again and without repeat business a company would find it very difficult to survive (refer fig 5.16).

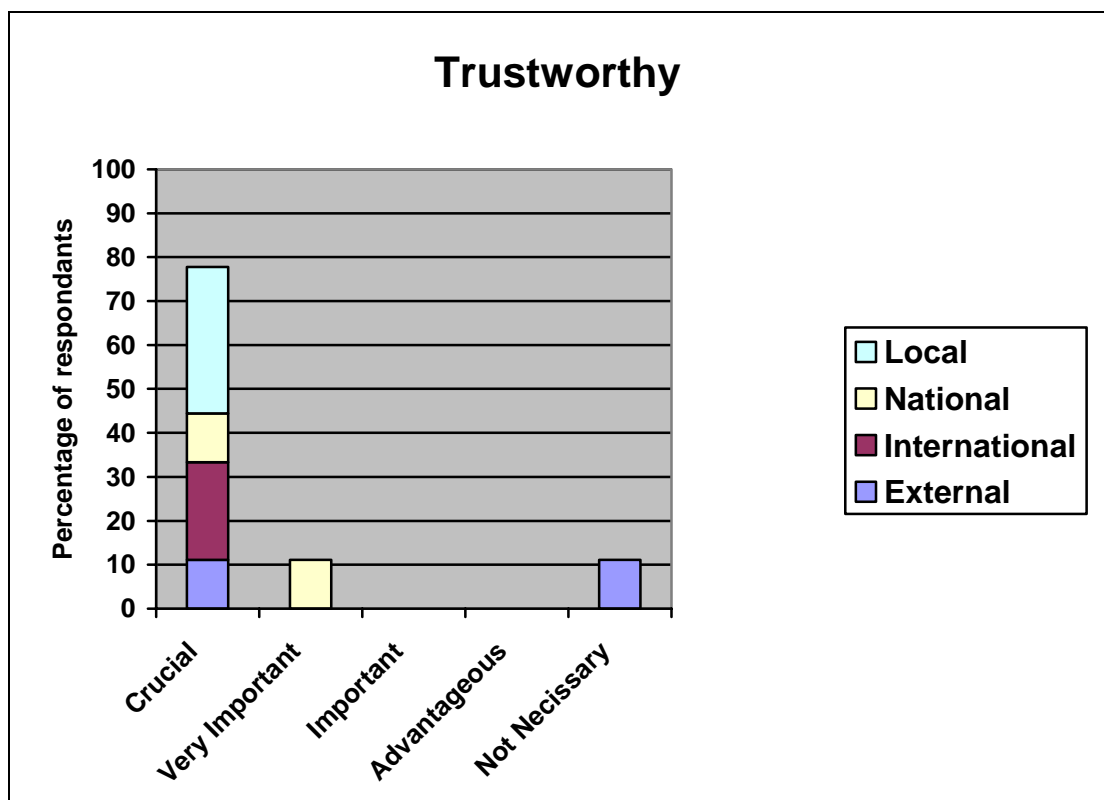


Figure 4.16: Importance of being trustworthy to a senior manager.

4.2.17 Comparison of the importance of leadership skills and traits

Comparison of Skills

International companies rank several skill sets higher than the other companies surveyed. International companies tend to expect their senior managers to possess highly developed skills in these areas. Smaller national and local companies still expect their senior managers to possess these skills but they may not need to be as highly refined and developed (refer fig 5.17 & fig 5.18).

Very important skills include:

- Analytical
- Conceptual
- Interpersonal
- Public Speaking
- Organisational
- Business
- Global Leadership
- Experience

With the most important being public speaking skills, global leadership skills and managerial experience.

Comparison of Traits

Again international companies rank several traits higher than that of the other companies surveyed. They expect their senior managers to exhibit these traits to a high degree. Smaller local and national companies still expect their senior managers to exhibit these traits but perhaps to a lesser degree (refer fig 5.19 & 5.20).

Very important traits include:

- Decisive
- Ambitious
- Self-confidence
- Persuasive
- Ethical
- Trustworthy

With the most important being decisive, self-confidence, ethical and trustworthy.

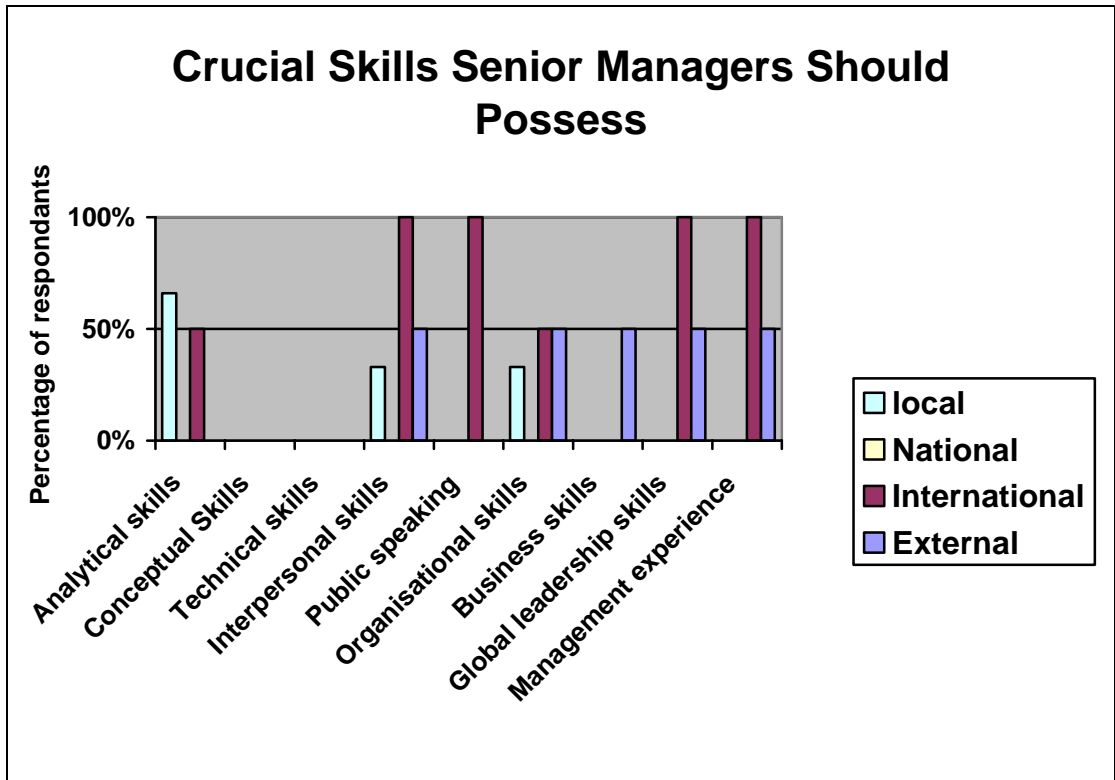


Figure 4.17: Comparison of skills ranked as crucial by respondents.

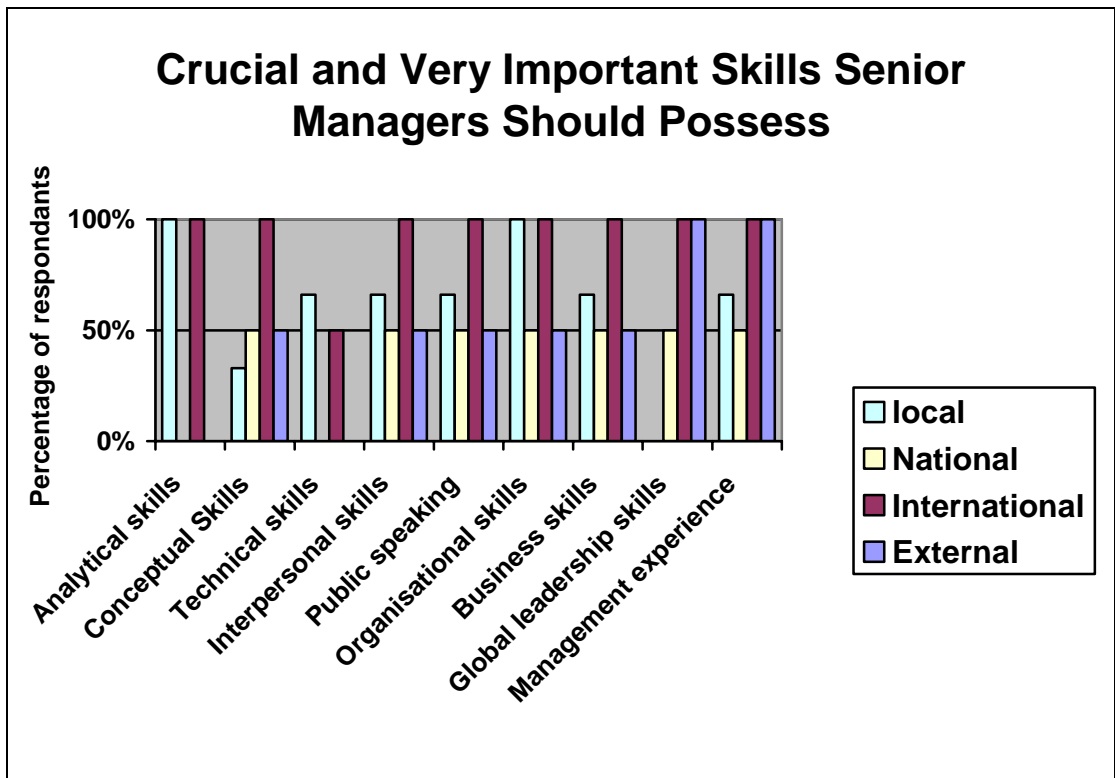


Figure 4.18: Comparison of skills ranked as crucial and very important by respondents.

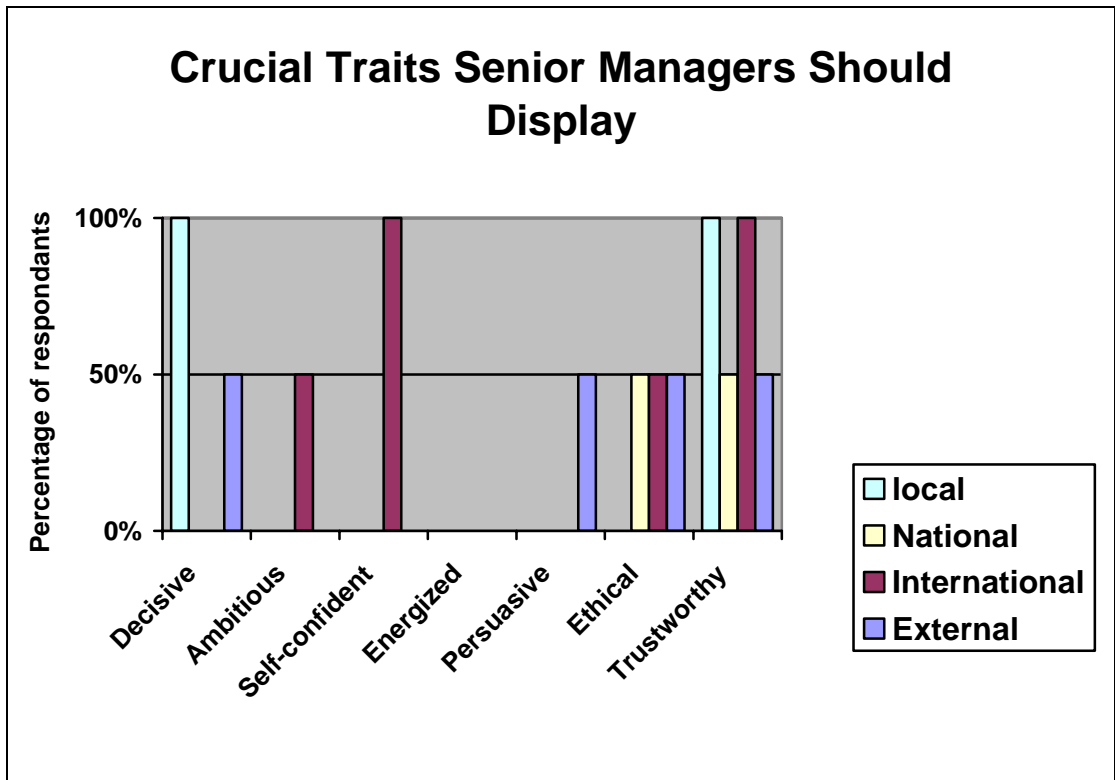


Figure 4.19: Comparison of traits ranked as crucial by respondents.

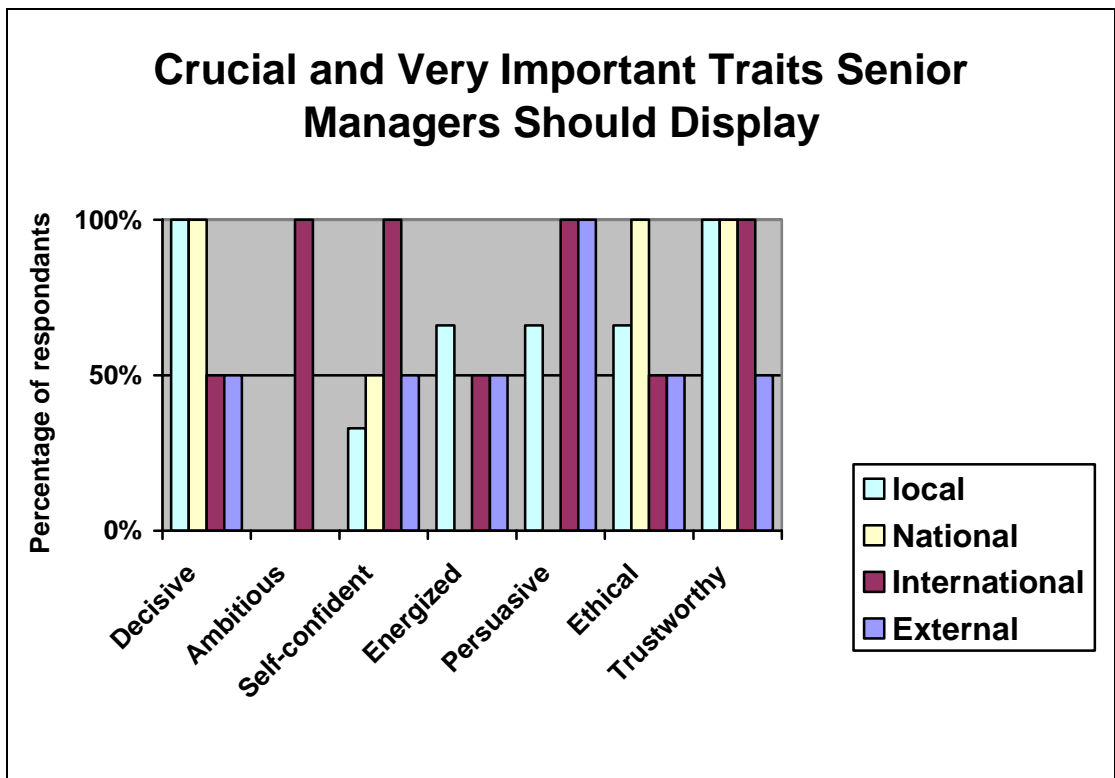


Figure 4.20: Comparison of traits ranked as crucial and very important by respondents.

CHAPTER 5 FINDINGS

The analysis of the responses to the questionnaire has revealed a number of important findings in relation to engineering leadership. The third aim of this study is:

To investigate ways in which engineers can improve their chances at being considered for the position of CEO.

The following findings reveal some of the things engineers can do in order to achieve this aim. The responses of senior managers who participated in the survey revealed the following:

1) Engineers make good candidates for senior management positions.

Engineers have technical backgrounds which most believe make engineers good candidates for senior management positions. However, not all engineers are suitable for this kind of role and some do not want to become managers. Education on leadership would therefore be less useful to those who are more comfortable in their technical world and these sorts of people should not be pushed into management roles. However the same education would be invaluable to those with the potential and desire to manage and lead companies.

2) All sized companies expect similar traits and skills of their leaders.

No matter what the size of the company, they all expect similar traits and skills of their leaders. The only difference may be that international companies expect these traits and skills to be more developed and refined. Figure 5.1 illustrates the skills and traits required of leaders.

LEADERSHIP TARGET



Figure 5.1: Leadership skills and traits

3) Leadership skills can be learned by engineers.

Leaders of all sized companies believe leadership skills can be gained through:

- Courses
- Acquisition of authorities
- Mentors

Figure 5.2 illustrates how engineers can acquire leadership abilities and then pass them on to their subordinates.

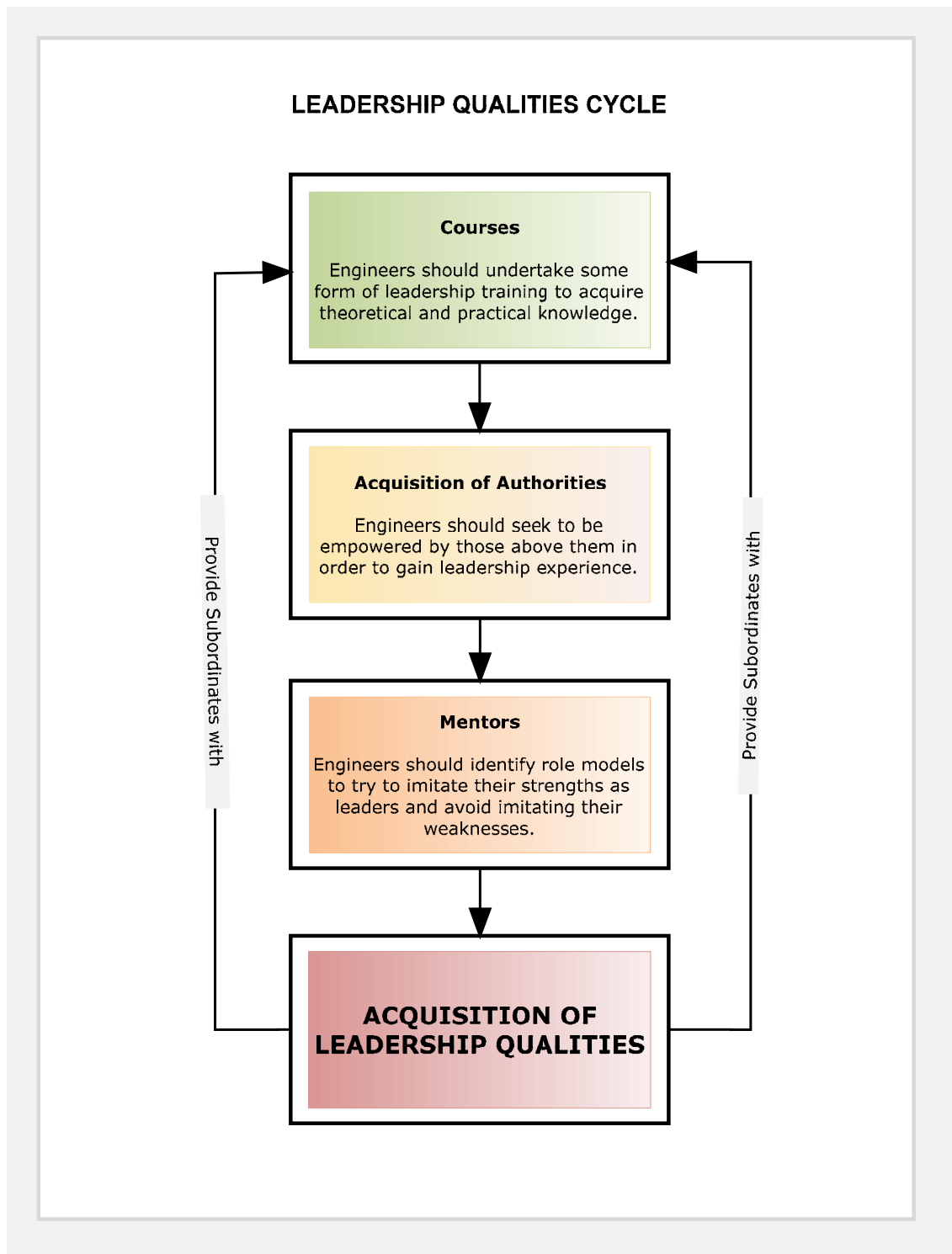


Figure 5.2: Acquisition of leadership qualities flow chart.

4) Life experiences contribute to leadership skills

Life experiences help contribute to leadership skills. Interestingly, many senior managers believe leadership roles within a family unit are similar to leading teams of people at work. Leading a family means you have to make decisions in life in an effort to benefit the family as a whole. This helps develop your skills as a leader.

Going through hardships in life also help develop leadership qualities. Again here one must make decisions on their own to overcome adversities. If they are able to do this they gain experience and confidence in their decision making abilities which is an important trait to have as the leader of a company.

5) Conceptual and analytical skills can be enhanced in engineers.

Conceptual and analytical skills are abilities within all of us. From an early age we can all come up with original ideas and work out how something is done. However, some people do this better than others. Therefore these skills can be enhanced in individuals. This can be done through a combination of theoretical and practical training.

6) Managers need functional knowledge of their company.

A manager should have functional knowledge such as accounting, finance, marketing and human resource. All sized companies agree an in depth knowledge is not required but a well-rounded knowledge in such disciplines is essential.

7) A leader should be able to initiate change in their company.

There is some contradictory evidence as to whether the ability to initiate change is necessary for a leader to possess. There are specialist 'change managers' which can be hired by companies so some leaders argue the ability to make major changes is not required by an operational manager. However, most agree that the ability to make small changes to create a competitive edge is required by all leaders.

8) A leader should be able to generate an effective strategic plan for their company.

A leader should have the ability consult with colleagues in order to generate strategic plans. They need to choose the best plan available to them and manage that plan so it is implemented effectively. Milestones should be established and monitored in order to achieve this. They should also keep up with industrial, business and governmental developments to enable the company to operate effectively and efficiently.

9) Engineers in local companies need access to leadership programs.

Programs for leadership generally exist in national and international companies. However, local companies usually do not provide such programs. Potential leaders working for local companies may have to look outside their company to gain access to such training.

10) A leader must be able to motivate team members.

Motivating others is key to a manager's success. Without motivation team members will tend to work slowly, dangerously and their output may lack quality. Ways to go about motivating others vary but a leader should have knowledge of the options available to them in order to achieve this. Some of these options can be seen in figure 5.3.

MOTIVATION WHEEL

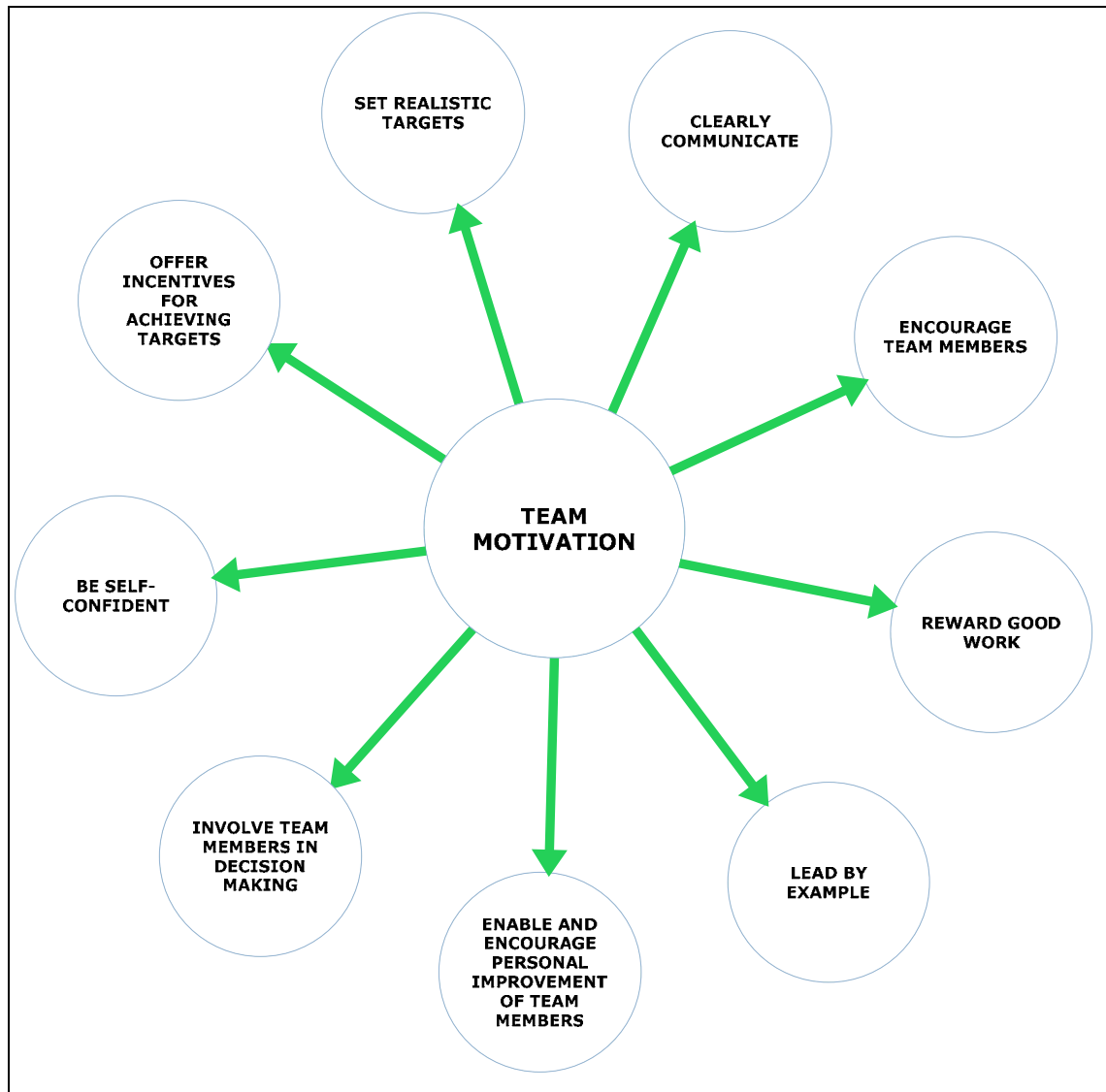


Figure 5.3: Ways leaders can motivate others.

11) **Engineers should surround themselves with successful people.**

Smaller sized companies generally believe it is not necessary to surround yourself with successful people in order to get recognition for your achievements. However, larger companies generally see this as important. This is probably due to the fact that it is harder to stand out in larger companies so one must 'shout out'. In small companies even small voices are heard. Despite this, it is a common belief across all sized companies that having successful people around you is important for you to be able to learn and grow as a leader and not necessarily for recognition. Meeting and talking with successful leaders can help engineers learn from them.

12) A leader should be a skilful public speaker.

Public speaking should be learned through practice and more practice. It is a difficult skill to master and needs constant training. Joining groups which offer a chance to speak in front of others can give you the practice you need.

13) A leader needs to be decisive.

Being decisive is something which a leader should know about and then practice. A leader needs to be able to make important decisions quickly. They also need to know when to delegate tasks to others and when to take on work personally. They need to know how to gather information and make the best decision based on this information without being bias.

14) A leader needs be ethical.

Ethics is one of the most important traits of a leader. Most candidates also believed honesty to be the most important of these traits. Leaders should be made aware of these ethics and the importance of them.

15) It is beneficial for a leader to have a well rounded knowledge of others customs, laws, politics and culture.

Having knowledge of others customs, laws, politics and culture is only necessary when your company is dealing with people of any of these groups. However, most leaders see these skills as beneficial regardless.

CHAPTER 6 CONCLUSION AND RECOMMENDATIONS

There is a general consensus among the respondents that leadership skills can be taught. This is a very important finding as if leadership could not be taught the output of graduates capable of leading companies would solely rely on the number of students entering the course with leadership capabilities already installed within them. With this knowledge it is now possible to focus on solutions to the current problem of engineers being overlooked as likely candidates for senior management positions.

It can be seen from the findings in this report that although engineers make good candidates for senior management positions they lack the skills and possibly the traits upon graduation from their engineering degree. Most of the skills important to a leader are not taught during their education at university. Therefore, as it stands, they must either gain these skills during their professional life, or in their personal time outside of work.

Certainly one solution would be to incorporate the development of these skills while engineers are undertaking their undergraduate studies. However, it must be remembered that, as pointed out in the findings of this report, not all engineers are suited to leadership roles. There is also a limited amount of time in a four year degree to devote to developing these skills. With these things in mind it is probably more appropriate to offer leadership training as a separate course.

Engineers which have already graduated and wish to pursue a career in engineering leadership but have not yet gained the skills to do so would also have access to this course. As revealed in section 5.9, engineers in local companies generally are not provided with programs to help develop these skills. Some respondents also mention they did not think the program offered by their company was effective. There is a real need for an effective training program for engineers seeking leadership roles.

The following is a recommendation of such a program based on the findings of this report (refer fig. 6.1).

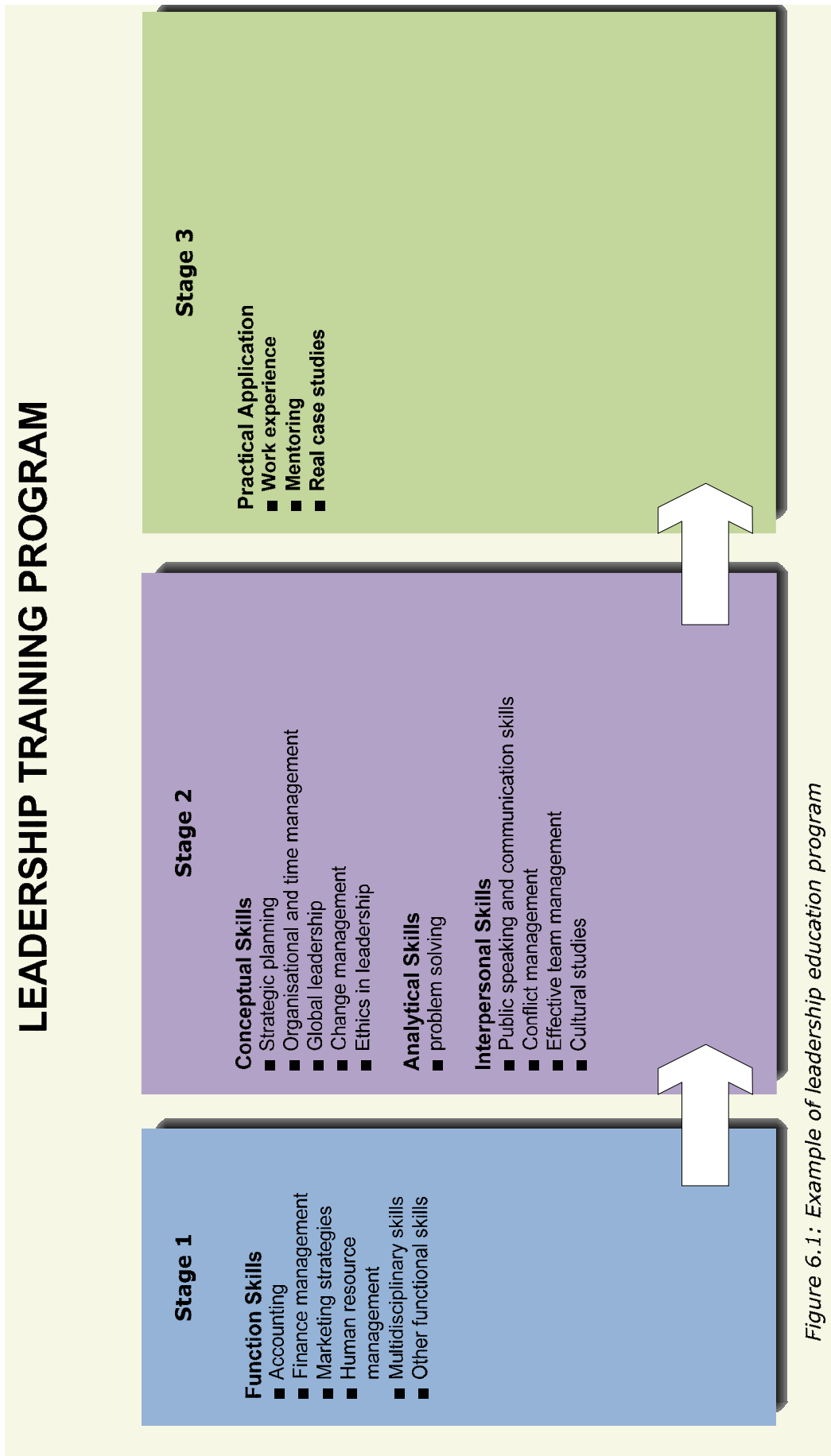


Figure 6.1: Example of leadership education program

Stage 1 – Functional Knowledge

This stage simply lays the foundations on which further leadership skills can be developed. It provides students with core skills necessary to lead a company. Most respondents mentioned a well-rounded knowledge of these skills was essential for a leader to have. It should be noted that students would simply be taught the basics in these fields so as to gain an understanding of how a business is run and not necessarily the knowledge needed to actually run all the aspects of a business yourself.

Stage 2 – Conceptual, Analytical and Interpersonal Skills

This stage deals more with developing critical leadership skills rather than core skills as in the first stage. The first part of this stage focuses on major conceptual skills such as strategic planning, organisational and time management, global leadership, change management and ethics in leadership. The second part of this stage deals with the analytical skills which will enhance students problem solving skills and give them confidence to lead companies through difficult times. The final part of this stage is designed to improve the interpersonal skills of students. Successful leaders need to be able to not only know what has to be done but get others to do it. This is where interpersonal skills are crucial and students will learn to effectively engage others in order to reach a common goal.

Stage 3 – Practical Application

The third and final stage is probably the most important of the three stages. It involves putting what the student has learned into practice. Successful leaders agree theoretical training is not enough for individuals to be able to lead companies. Those who can apply theoretical knowledge to practical applications are the ones who inevitably become desirable leaders. Practical training is essential and at this stage students will gain this. They will participate in work experience, have access to mentors and be given examples of real-life case studies. This will enable students to integrate what they have learned with real-life applications. They should also be provided with constructive feedback on their performance.

Conclusion and Recommendations

This program is not something which can be completed quickly and easily by students. There are many important skills to master so it probably could not be incorporated into the current engineering program. Rather it should be offered as further studies to those wishing to enter leadership roles.

Leadership is something which can be taught through a model similar to what has been outlined in this report. Engineers who complete such training would acquire skills, acknowledged by current leaders, as crucial to senior managers. They would leave with knowledge of practical business skills as well as important inter-personal, conceptual and analytical skills. They would have had a chance to apply these skills in real-life situations gaining valuable management experience. With these skills graduates would leave feeling confident they could successfully lead any size company and would certainly be attractive as potential candidates for senior management roles in engineering companies.

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Appendix A

Questionnaires



MANAGEMENT SKILLS QUESTIONNAIRE

Topic: A comparative review of attributes of engineers in senior management roles in small, medium and large organisations.

For: SK Corporation
Mr Woan Sik Kim
Vice President Utilities Team

Undergraduate: Daniel Price

Supervisor: Steven Goh

Approximate Completion Time:

Part A: 30 minutes

Part B: 10 minutes

Number of Questions:

Part A: 20 questions

Part B: 2 questions

Date: July, 2007

Management Skills Questionnaire

PART A

1. Do you think engineers are good candidates for senior management roles?

Why or why not?

I think engineers are perfect candidates for senior management roles since most of them gain not only the on-site experiences to build technical skills but also deal with many occasions where they actually make decisions. By doing so, they gradually gain authorities as well as management skills, leading them one step closer to senior management role.

2. In your experience, what traits make a good leader?

Through my experience, I believe leadership skills along with ambition are the most important traits of a leader.

3. Have others helped shape your leadership skills? If yes, in what ways?

My old senior manager helped me shape my leadership skills by giving me opportunities to arrange & organize important business activities as well as giving me authorities & obligations to make decisions.

4. Have life experiences helped develop your leadership skills? If yes, in what ways?

Simply, being part of a family and raising children helped me to develop and realize how important leadership skills are in life. It gave me responsibilities and helped me become more trustworthy.

Management Skills Questionnaire

5. How have you gained conceptual and analytical skills? Do you think these skills can be taught effectively?

In my personal opinion, conceptual and analytical skills can be effectively taught by providing actual experience. Analytical skills should not be just taught with theoretical study but practical knowledge is essential.

6. How important do you think functional knowledge, such as accounting, finance, marketing and human resources, is for senior managers to possess?

I believe functional knowledge is necessary for senior managers to possess. Not too deep, but overall competency in functional knowledge is essential especially when developing a broad human network internally as well as externally.

7. How important do you think technical skills are for upper managers to possess?

Upper manager should have technical skills. If not, it would be very difficult to communicate with others regarding related projects, biz, research, etc. Moreover, he/she will have a hard time making a clear (right) decision on their own rather than be influenced by others.

8. Have you ever had to initiate change within your organisation? Do you consider the ability to do this an important skill for a leader to possess?

One should be enthusiastic and ambitious about change. Creating innovation is an important skill for a leader to possess. I have initiated changes in my organization many times but also have failed several times; however, constant trials and overcoming failure brings successful achievements.

Management Skills Questionnaire

9. How do you come up with plans for change or the direction you would like the company to be going?

I try to think with creativity; always consider a different point of view. Put myself in other's shoes is also a good example. Try to listen to as many different opinions as I can, but also make sure not to be bias. Coming up with an idea and fixing concept is the hardest part. Implementing the idea is a different story.

10. Does your company have a program to help identify and develop leadership skills in employees? Is this important or can talent sourced from elsewhere?

We have great program, theoretical studies along with providing accounts of real life experiences help develop leadership skills in our employees. It is open to every employee. Outsourcing is an option, but internal promotion is a much better option where possible.

11. Obviously senior managers are highly motivated. Have you always been motivated or have you been motivated by others around you?

Personally, Ambition and enthusiasm is in my nature. I believe motivation can be gained from experience, compensation, promotion, etc, but one should always have positive attitude and be eager.

12. It is also important that senior managers motivate teams to achieve goals. How do you go about motivating people around you?

I motivate people by giving right directions and appropriate advice; always listen to their thoughts and pay attention making sure to understand their intentions and needs. Also involve them as much as possible and always remind them of the spirit of teamwork that creates fast and successful results.

Management Skills Questionnaire

13. Do you think it is important to surround yourself with successful people in order to get recognition for your achievements?

I believe who you are working with is a very important matter to consider. But what you do and how you work to get recognition is more significant.

14. How have you developed your self-confidence and public speaking abilities? Are these qualities important in leadership roles?

Self-confidence and public speaking abilities can be improved in many ways. I have much experience on public speaking but I do still practice as much I can. Yes it is important in leadership role.

15. How important is it for a leader to be decisive and to be able to delegate tasks effectively?

Leader should be decisive. A leader should not easily be influenced in the wrong direction and not be bias especially when making decisions. But one must be also flexible on certain occasions.

16. Do you think a leader should be ethical in his/her affairs? What ethical traits would you expect them to exhibit?

Leaders should be ethical. He/She must be open, honest, and trustworthy and show respect to others.

17. Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

I do not think it is a mandatory but such knowledge would definitely help him/her to become better leader. Moreover, I think a leader should know about such areas for his/her convenience.

Management Skills Questionnaire

18. What skills do you think a senior manager of a national company should possess over and above that of a senior manager of a local company?

A senior manager of a national company should have more public speaking skill, business skills and organization skills. Moreover, as the size of the company gets bigger one should be more ethical and trustworthy.

19. What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

Obviously language skills as well as global leadership skills. Senior managers are faced with many situation where they must speak for the company (example: over sea meetings). Hence he/she must be self-confident and persuasive as well.

20. How do you think leaders of local, national and international companies differ?

I believe depth of technical & Biz. knowledge, experience and achievements may differ but basically, one should have all the leadership skills (as mentioned above) no matter what size of company you work for.

Management Skills Questionnaire

PART B

Using the scale below, how would you rate the importance of the following skills with regards to senior managers?

①	-	Crucial
②	-	Very important
③	-	Important
④	-	Advantageous
⑤	-	Not necessary

Analytical Skills

① ② ③ ④ ⑤

Conceptual Skills

① ② ③ ④ ⑤

Technical Skills

① ② ③ ④ ⑤

Interpersonal Skills

① ② ③ ④ ⑤

Public Speaking

① ② ③ ④ ⑤

Management Skills Questionnaire

Organisational Skills

① ② ③ ④ ⑤

Business Skills

① ② ③ ④ ⑤

Global Leadership Skills

① ② ③ ④ ⑤

Management Experience

① ② ③ ④ ⑤

Management Skills Questionnaire

Using the same scale how would you rate the importance of the following traits with regards to senior managers?

Decisive

① ② ③ ④ ⑤

Ambitious

① ② ③ ④ ⑤

Self-confident

① ② ③ ④ ⑤

Energized

① ② ③ ④ ⑤

Persuasive

① ② ③ ④ ⑤

Ethical

① ② ③ ④ ⑤

Trustworthy

① ② ③ ④ ⑤



University of Southern Queensland

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CRICOS: QLD 00244B NSW 02225K

MANAGEMENT SKILLS QUESTIONNAIRE

Topic: A comparative review of attributes of engineers in senior management roles in small, medium and large organisations.

For: SK Corporation
Mr Hae Ryong So
Vice President Maintenance Team

Undergraduate: Daniel Price

Supervisor: Steven Gubb

Approximate Completion Time:

Part A: 30 minutes

Part B: 10 minutes

Number of Questions:

Part A: 20 questions

Part B: 2 questions

Date: July, 2007

Management Skills Questionnaire

PART A

1. Do you think engineers are good candidates for senior management roles?

Why or why not?

A: I think it depends on the case. The following should be considered; the main business of the company (production or service) and the duty of the senior manager (CTO or another) etc. If the role is for a CTO of a manufacturing industry, an engineering background is highly recommended. Many great senior managers were engineers before they were appointed to such positions (such as Bill Gates). I think for any kind of senior management position, an engineering background is a plus.

2. In your experience, what traits make a good leader?

A: **Honesty** - Display sincerity, integrity, and candour in all your actions. Deceptive behaviour will not inspire trust.

Competent - Your actions should be based on reason and moral principles. Do not make decisions based on childlike emotional desires or feelings.

Forward-looking - Set goals and have a vision of the future. The vision must be owned throughout the organization. Effective leaders envision what they want and how to get it. They habitually pick priorities stemming from their basic values.

Inspiring - Display confidence in all that you do. By showing endurance in mental, physical, and spiritual stamina, you will inspire others to reach for new heights. Take charge when necessary.

Intelligent - Read, study, and seek challenging assignments.

Fair-minded - Show fair treatment to all people. Prejudice is the enemy of justice. Display empathy by being sensitive to the feelings, values, interests, and well-being of others.

Broad-minded - Seek out diversity.

Management Skills Questionnaire

Courageous - Have the perseverance to accomplish a goal, regardless of the seemingly insurmountable obstacles. Display a confident calmness when under stress.

Straightforward - Use sound judgment to make good decisions at the right time.

Imaginative - Make timely and appropriate changes in your thinking, plans, and methods. Show creativity by thinking of new and better goals, ideas, and solutions to problems. Be innovative!

3. Have others helped shape your leadership skills? If yes, in what ways?

A: Surely yes. My leadership is more or less influenced by people around me. This has always come about during the communication process. There are two ways: one is direct influence – most happens through lectures on leadership skills; another way is indirect influence, which usually happens when I communicate with my colleagues.

4. Have life experiences helped develop your leadership skills? If yes, in what ways?

A: Yes. Life experiences always influenced your attitude towards people or affairs, and it has also influenced my way of solving problems. All these things are very important during leadership, so I think life experiences helped develop my leadership skills.

Management Skills Questionnaire

5. How have you gained conceptual and analytical skills? Do you think these skills can be taught effectively?

A: The basic conceptual and analytical skills have been learnt from education and my senior managers. By using and testing such basic theories in my work, one can summarize and enhance their skills. In my opinion, I think the basic knowledge or theories can be taught effectively by through a programme, but how to use them should be summarized by him/her and his/her senior.

6. How important do you think functional knowledge, such as accounting, finance, marketing and human resources, is for senior managers to possess?

A: I think it is very important to get familiar with such knowledge. Without it, a senior manager wouldn't even be able to begin his main work.

7. How important do you think technical skills are for upper managers to possess?

A: Although technical skills are not so important to upper managers compared with the importance to practical engineers, it is better if upper managers can understand the basic theories of technology.

8. Have you ever had to initiate change within your organisation? Do you consider the ability to do this an important skill for a leader to possess?

A: Yes, I really consider the ability to do so an important skill for a leader to possess.

Management Skills Questionnaire

9. How do you come up with plans for change or the direction you would like the company to be going?

A: Most changes would be more or less instinctively rejected by the members of the group affected. So the difficulty of change should be fully considered right from the period of establishing the plan. It is advisable to let people under the change find the advantages of change by themselves, and then the process of change will be much easier. But the schedule should also be strictly observed. Every step should be finished on time.

10. Does your company have a program to help identify and develop leadership skills in employees? Is this important or can talent sourced from elsewhere?

A: Yes. Every year some employee would attend MBA and education programs organized by the company. I think this is very important for feeding up the potential candidates of senior manager.

11. Obviously senior managers are highly motivated. Have you always been motivated or have you been motivated by others around you?

A: I think people will be motivated if they have a clear target for where they want to get in life. So, I have made my target by myself and I have been motivated by myself.

Management Skills Questionnaire

12. It is also important that senior managers motivate teams to achieve goals.

How do you go about motivating people around you?

A: Communication is the most direct and useful way to motivate people around me. If I can clearly describe the bright future during the process of achieving goals, most people will be motivated. I think the important thing is, when communicating with them, a good manager should be self-confident. An appropriate prize is also needed, such as bonus and additional holiday.

13. Do you think it is important to surround yourself with successful people in order to get recognition for your achievements?

A: I absolutely agree with such opinion. In fact for me, it's also the source of getting self-confidence in my daily life.

14. How have you developed your self-confidence and public speaking abilities? Are these qualities important in leadership roles?

A: I joined various associations to get practice. This gave me opportunities to make public presentations and develop my self-confidence. I was encouraged by them and also gained the self-confidence I needed.

15. How important is it for a leader to be decisive and to be able to delegate tasks effectively?

A: It's important. But I think a more important thing is whether the leader can find suitable people in his team to finish the task effectively.

Management Skills Questionnaire

16. Do you think a leader should be ethical in his/her affairs? What ethical traits would you expect them to exhibit?

A: I think a leader should be ethical in his/her affairs. The most important is honesty and fair mindedness.

17. Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

A: If the company is just a local one, such knowledge is not required but would also be advantageous for the company. If the company is national or even international one, I think such knowledge becomes the key to judge if a manager is worth his/her position or not.

18. What skills do you think a senior manager of a national company should possess over and above that of a senior manager of a local company?

A: Vision is the first. Senior managers of a national company should have a much wider vision than that of a senior manager of a local company. They should also be more competent and perceptive, and their forward-looking ability should also be stronger.

19. What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

A: The candidate's vision is now very important. The candidate should have a wide and far-reaching vision. And another important character now is the ability of managing people with different culture and different background. Communication Ability should also be stronger.

Management Skills Questionnaire

20. How do you think leaders of local, national and international companies differ?

A: The basic duty or work for leaders in local, national and international companies is the same --- all of them should lead companies by ensuring they survive from the competition and acquire benefits. Vision of these three kinds of leaders is different, while leaders of international companies should have the widest vision among these three kinds. And for leaders of international companies, the work is more specific.

Management Skills Questionnaire

PART B

Using the scale below, how would you rate the importance of the following skills with regards to senior managers?

①	-	Crucial
②	-	Very important
③	-	Important
④	-	Advantageous
⑤	-	Not necessary

Analytical Skills

① ② ③ ④ ⑤

Conceptual Skills

① ② ③ ④ ⑤

Technical Skills

① ② ③ ④ ⑤

Interpersonal Skills

① ② ③ ④ ⑤

Public Speaking

① ② ③ ④ ⑤

Management Skills Questionnaire

Organisational Skills

1 2 3 4 5

Business Skills

1 2 3 4 5

Global Leadership Skills

1 2 3 4 5

Management Experience

1 2 3 4 5

Management Skills Questionnaire

Using the same scale how would you rate the importance of the following traits with regards to senior managers?

Decisive

① ② ③ ④ ⑤

Ambitious

① ② ③ ④ ⑤

Self-confident

① ② ③ ④ ⑤

Energized

① ② ③ ④ ⑤

Persuasive

① ② ③ ④ ⑤

Ethical

① ② ③ ④ ⑤

Trustworthy

① ② ③ ④ ⑤



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MANAGEMENT SKILLS QUESTIONNAIRE

Topic: A comparative review of attributes of engineers in senior management roles in small, medium and large organisations.

For: Origin Energy
Mr Ian Cooke
Operations Manager

Undergraduate: Daniel Price

Supervisor: Steven Goh

Approximate Completion Time:

Part A: 30 minutes

Part B: 10 minutes

Number of Questions:

Part A: 20 questions

Part B: 2 questions

Date: July, 2007

Management Skills Questionnaire

PART A

1. Do you think engineers are good candidates for senior management roles?

Why or why not?

Some are and some aren't. Some are interested in the purely technical engineering aspects which either prefer to manage others.

2. In your experience, what traits make a good leader?

Some lead from the front and make the path for others to follow. While others lead from behind encouraging those being led - they do not press that they are being led.

3. Have others helped shape your leadership skills? If yes, in what ways?

Yes - by example. There have been 3 people who have influenced me - one led from the front the other two led from behind.

Management Skills Questionnaire

4. Have life experiences helped develop your leadership skills? If yes, in what ways?

Life experiences always influence who and what you are

5. How have you gained conceptual and analytical skills? Do you think these skills can be taught effectively?

Through life experiences. Learning these skills depends on the understanding of the teacher & the learner.

6. How important do you think functional knowledge, such as accounting, finance, marketing and human resources, is for senior managers to possess?

Senior manager usually do an MBA or a similar subject/course to balance the technical reports with the broader management skills - so yes it is important

Management Skills Questionnaire

7. How important do you think technical skills are for upper managers to possess?

*If they have an experienced team working for them
are they are a "Team leader" then they don't need a
broad range of skills.*

8. Have you ever had to initiate change within your organisation? Do you consider the ability to do this an important skill for a leader to possess?

*If a functional leader it is not as important
to initiate change.*

9. How do you come up with plans for change or the direction you would like the company to be going?

No Answer.

Management Skills Questionnaire

10. Does your company have a program to help identify and develop leadership skills in employees? Is this important or can talent sourced from elsewhere?

Yes it does but it is not effective.
It is usually who you know not what you know.

In today's environment it is very difficult to find good people.

11. Obviously senior managers are highly motivated. Have you always been motivated or have you been motivated by others around you?

Motivation is given by those above as it is difficult to get motivated when you don't get support from those above.

Senior managers are not always motivated

12. It is also important that senior managers motivate teams to achieve goals.

How do you go about motivating people around you?

I like to think that I lead from behind by talking to and encouraging people about their work.
This technique always works for me.

Management Skills Questionnaire

13. Do you think it is important to surround yourself with successful people in order to get recognition for your achievements?

I don't seek recognition I prefer them recognizing for me to get it

14. How have you developed your self-confidence and public speaking abilities?

Are these qualities important in leadership roles?

by practice and I am still not perfect. It is a lot easier to talk to people one knows than a room full of strangers.

15. How important is it for a leader to be decisive and to be able to delegate tasks effectively?

It is one attribute of a good leader

Management Skills Questionnaire

16. Do you think a leader should be ethical in his/her affairs? What ethical traits would you expect them to exhibit?

YES.

17. Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

Depends on where the company operates - they should understand those people they have to deal with

18. What skills do you think a senior manager of a national company should possess over and above that of a senior manager of a local company?

All A17

Management Skills Questionnaire

19. What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

See Q17

20. How do you think leaders of local, national and international companies differ?

See Q17

Management Skills Questionnaire

PART B

Using the scale below, how would you rate the importance of the following skills with regards to senior managers?

①	-	Crucial
②	-	Very important
③	-	Important
④	-	Advantageous
⑤	-	Not necessary

Analytical Skills

① ② ③ ④ ⑤

Conceptual Skills

① ② ③ ④ ⑤

Technical Skills

① ② ③ ④ ⑤

Interpersonal Skills

① ② ③ ④ ⑤

Public Speaking

① ② ③ ④ ⑤

Management Skills Questionnaire

Organisational Skills

- ① ② ③ ④ ⑤

Business Skills

- ① ② ③ ④ ⑤

Global Leadership Skills

- ① ② ③ ④ ⑤

Management Experience

- ① ② ③ ④ ⑤

Management Skills Questionnaire

Using the same scale how would you rate the importance of the following traits with regards to senior managers?

Decisive

① ② ③ ④ ⑤

Ambitious

① ② ③ ④ ⑤

Self-confident

① ② ③ ④ ⑤

Energized

① ② ③ ④ ⑤

Persuasive

① ② ③ ④ ⑤

Extravert

① ② ③ ④ ⑤

Trustworthy

① ② ③ ④ ⑤



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MANAGEMENT SKILLS QUESTIONNAIRE

Topic: A comparative review of attributes of engineers in senior management roles in small, medium and large organisations.

For: Origin Energy
Mr Martin Riley
CSG and Oil & Gas Production Manager

Undergraduate: Daniel Price

Supervisor: Steven Goh

Approximate Completion Time:

Part A: 30 minutes

Part B: 10 minutes

Number of Questions:

Part A: 20 questions

Part B: 2 questions

Date: July, 2007

Management Skills Questionnaire

PART A

1. Do you think engineers are good candidates for senior management roles?

Why or why not?

Yes.

They have a good aptitude generally
for both the technical and commercial
side of the business.

2. In your experience, what traits make a good leader?

- Good communication skill
- Good people motivator
- Willing to empower people

3. Have others helped shape your leadership skills? If yes, in what ways?

Yes, I have had some excellent mentors
and managers.

My latest manager has demonstrated the
importance of making more time available to
communicate and motivate people.

Management Skills Questionnaire

4. Have life experiences helped develop your leadership skills? If yes, in what ways?

There are a number of parallels in managing a family and team of people at work. It is important to encourage and support your children while giving them room to grow - this is similar to encouraging people in the workplace.

5. How have you gained conceptual and analytical skills? Do you think these skills can be taught effectively?

Combination of courses and on the job. I believe with proper training, these skills can be enhanced.

6. How important do you think functional knowledge, such as accounting, finance, marketing and human resources, is for senior managers to possess?

My view is that a well rounded knowledge in all these attributes will assist senior management.

Management Skills Questionnaire

7. How important do you think technical skills are for upper managers to possess?

Again, a knowledge of technical understanding will benefit decision making processes.

8. Have you ever had to initiate change within your organisation? Do you consider the ability to do this an important skill for a leader to possess?

Minor changes
I think the ability to put in a change in a different way to make a complete cycle is useful

9. How do you come up with plans for change or the direction you would like the company to be going?

It is important to always be looking for improvement. This might require a change in direction for the organisation.

Management Skills Questionnaire

10. Does your company have a program to help identify and develop leadership skills in employees? Is this important or can talent sourced from elsewhere?

We have 'high potential' people identified in programs. The organization has supervisory and management development programs. These programs are important in a digital market for people.

11. Obviously senior managers are highly motivated. Have you always been motivated or have you been motivated by others around you?

Both
I am naturally competitive and motivated to succeed. Inspired leaders above have a motivating environment in the company.

12. It is also important that senior managers motivate teams to achieve goals.

How do you go about motivating people around you?

Mainly ensuring goal met is noted and rewarded.

Management Skills Questionnaire

13. Do you think it is important to surround yourself with successful people in order to get recognition for your achievements?

Teamwork is essential for a strong company. Therefore having the right mix of people is most important.

14. How have you developed your self-confidence and public speaking abilities?

Are these qualities important in leadership roles?

Yes, they generally come with practice and experience. It is an important part of the communication skill required.

15. How important is it for a leader to be decisive and to be able to delegate tasks effectively?

Very important. Decisive leadership is important to give direction to people. You can't do everything, so empowerment and delegation is an important part of successful leadership.

Management Skills Questionnaire

16. Do you think a leader should be ethical in his/her affairs? What ethical traits would you expect them to exhibit?

Absolutely
should have some ethical standards
expected by community.
- fair
- equal opportunity
- work well within legal framework

17. Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

An all round knowledge is useful
I think knowledge of other countries
is not essential in an Australian only
company, however most businesses are
becoming increasingly global

18. What skills do you think a senior manager of a national company should possess over and above that of a senior manager of a local company?

Clear knowledge of differences in state
and politics of cultures would
be more necessary in a national
company.

Management Skills Questionnaire

19. What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

Knowledge of global economic, political
climate and culture would be
important for international.

20. How do you think leaders of local, national and international companies differ?

I think they should generally have
similar personal traits although
their knowledge base may be
necessarily different.

Management Skills Questionnaire

PART B

Using the scale below, how would you rate the importance of the following skills with regards to senior managers?

①	-	Crucial
②	-	Very Important
③	-	Important
④	-	Advantageous
⑤	-	Not necessary

Analytical Skills

① ② ③ ✓ ④ ⑤

Conceptual Skills

① ② ✓ ③ ④ ⑤

Technical Skills

① ② ③ ✓ ④ ⑤

Interpersonal Skills

① ② ✓ ③ ④ ⑤

Public Speaking

① ② ✓ ③ ④ ⑤

Management Skills Questionnaire

Organisational Skills

① ② ✓ ③ ④ ⑤

Business Skills

① ② ✓ ③ ④ ⑤

Global Leadership Skills

① ② ✓ ③ ④ ⑤

Management Experience

① ② ③ ✓ ④ ⑤

Management Skills Questionnaire

Using the same scale how would you rate the importance of the following traits with regards to senior managers?

Decisive

① ② ③ ④ ⑤

Ambitious

① ② ③ ④ ⑤

Self-confident

① ② ③ ④ ⑤

Energized

① ② ③ ④ ⑤

Persuasive

① ② ③ ④ ⑤

Existent

① ② ③ ④ ⑤

Trustworthy

① ② ③ ④ ⑤



MANAGEMENT SKILLS QUESTIONNAIRE

Topic: A comparative review of attributes of engineers in senior management roles in small, medium and large organisations.

For: Mining People International
Mr Stuart Merrick
Operations Manager (Perth)

Undergraduate: Daniel Price

Supervisor: Steven Goh

Approximate Completion Time:

Part A: 30 minutes

Part B: 10 minutes

Number of Questions:

Part A: 20 questions

Part B: 2 questions

Date: July, 2007

Management Skills Questionnaire

PART A

1. Do you think engineers are good candidates for senior management roles?

Why or why not?

Generally they are, but of course there are always exceptions to the rule. One has to be careful that highly competent technical people are not pushed into management roles, when they are more comfortable in their technical world. Good engineers are not always good managers, and each case needs to be judged on its merits.

2. In your experience, what traits make a good leader?

There is a subtle difference between managers and leaders. Some say that leaders are born with the skill, the ability to get people to do what you want them to do, often by example. It is generally a case of walk the walk and talk the talk.

3. In most cases, how have your candidates developed their leadership skills?

There are generally many leadership courses available to train and develop leaders. The key to success is to have the candidates go away from these courses with a determination to put into practice what they have learned. Invariably those who do this will become tomorrow's leaders.

4. Have life experiences helped your candidates develop their leadership skills? If yes, in what ways?

Life experiences are always the best way of learning, and enable young professionals to model their behaviour on what they see in others, both good and bad.

Management Skills Questionnaire

5. How have your candidates gained conceptual and analytical skills? Do you think these skills can be taught effectively?

These skills are taught as part of the education cycle, which generally takes up to 12 years of early life. If they haven't been learned by then, there is something clearly wrong.

6. How important do you think functional knowledge, such as accounting, finance, marketing and human resources, is for senior managers to possess?

Senior managers need to have at least a functional knowledge of these things. They do not need to be expert on the subjects, but they really need to have access to specialists for direction and guidance.

7. How important do you think technical skills are for upper managers to possess?

Technical skills are not important to good senior managers, as they will have specialists available from within their own organisations

8. Have your candidates ever had to initiate change within your organisation? Do you consider the ability to do this an important skill for a leader to possess?

Change management is becoming more and more important in today's business world. Evenso, not every manager is a good change manager, as it is quite a specialised area. Sometimes it can be necessary to bring change managers into an organisation to plan and implement the changes and then leave.

Management Skills Questionnaire

9. How do your candidates come up with plans for change or the direction they would like the company to be going?

Strategic planning for these types of change are frequently the best when they come from within the team. In this way, the management team is able to take ownership of the planned changes through the implementation stage, which invariably means a higher likelihood of success.

10. Do you think it is important for companies to have a program to help identify and develop leadership skills in employees or can they source talent from elsewhere?

Undoubtedly it is best for companies to have leadership development programmes of their own, but in today's world sometimes the companies may not be big enough to warrant that, in which case those skills need to be brought in from outside to train the companies people.

11. Obviously senior managers are highly motivated. Have your candidates always been motivated or have they been motivated by others around them?

Personal motivation is invariably the best. Without this, the road to success may well be a long and hard one. However, good leaders are normally great motivators.

12. It is also important that senior managers motivate teams to achieve goals.

How do your candidates go about motivating people around them?

Good leaders set targets for their group, making sure that those goals are realistic and achievable by the group. The drive and enthusiasm to keep the group motivated towards the goal is then not so difficult, as the group is focussed on the objective.

Management Skills Questionnaire

13. Do you think it is important for potential candidates for senior management positions to surround themselves with successful people in order to get recognition for their achievements?

Absolutely.

14. How have your candidates developed self-confidence and public speaking abilities? Are these qualities important in leadership roles?

Training helps people become confident speakers, although an ability to act the part helps a lot. Lots of practice also helps. These qualities are very important in leadership roles.

15. How important is it for a leader to be decisive and to be able to delegate tasks effectively?

Extremely important.

16. Do you think a leader should be ethical in his/her affairs? What ethical traits would you expect them to exhibit?

Leaders lead by personal example, not by "do as I say, not as I do". A high level of personal moral ethics sets the stage for others to model themselves on.

Management Skills Questionnaire

17. Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

This depends on the role of the leader. For instance, a manager in charge of an underground mine in the middle of Tasmania will not be able to do his job any better if he was an expert on Middle Eastern affairs. On the other hand, the Foreign Minister would have to have such knowledge.

18. What skills do you think a senior manager of a national company should possess over and above that of a senior manager of a local company?

Knowledge of each state's politics, taxes, major business leaders, customers, etc.

19. What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

Knowledge of exchange rates, the impact they can have on a business, knowledge of the culture of the customers, and the general nature of the international business environment.

20. How do you think leaders of local, national and international companies differ?

A broader overall sense of the business arena, cultures, local and international issues.

Management Skills Questionnaire

PART B

1. Using the scale below, how would you rate the importance of the following skills with regards to senior managers?

①	-	Crucial
②	-	Very important
③	-	Important
④	-	Advantageous
⑤	-	Not necessary

Analytical Skills

① ② ③ ● ⑤

Conceptual Skills

① ● ③ ④ ⑤

Technical Skills

① ② ③ ● ⑤

Interpersonal Skills

● ② ③ ④ ⑤

Public Speaking

① ● ③ ④ ⑤

Management Skills Questionnaire

Organisational Skills

① ② ③ ④ ⑤

Business Skills

① ② ③ ④ ⑤

Global Leadership Skills

① ② ③ ④ ⑤

Management Experience

① ② ③ ④ ⑤

2. Using the same scale how would you rate the importance of the following traits with regards to senior managers?

Decisive

① ② ③ ④ ⑤

Ambitious

① ② ③ ④ ⑤

Self-confident

① ② ③ ④ ⑤

Management Skills Questionnaire

Energized

① ● ③ ④ ⑤

Persuasive

● ② ③ ④ ⑤

Ethical

● ② ③ ④ ⑤

Trustworthy

● ② ③ ④ ⑤



MANAGEMENT SKILLS QUESTIONNAIRE

Topic: A comparative review of attributes of engineers in senior management roles in small, medium and large organisations.

For: Hays Recruitment Agency
Mr Ian Flanagan
Operations Manager (brisbane)

Undergraduate: Daniel Price

Supervisor: Steven Goh

Approximate Completion Time:

Part A: 30 minutes

Part B: 10 minutes

Number of Questions:

Part A: 20 questions

Part B: 2 questions

Date: July, 2007

Management Skills Questionnaire

PART A

1. Do you think engineers are good candidates for senior management roles?

Why or why not?

They can make good managers and leaders; however this is not always the case. Sometimes, engineers are too involved in the technical aspect of their work which can be detrimental to their leadership skills. On the other hand some engineers make great leaders. Each individual needs to be judged on their merits.

2. In your experience, what traits make a good leader?

Being able to lead by example is very important. Leaders should be able to motivate the people around them to achieve a common goal. Delegating tasks to get the job done right and get it done within a time frame is paramount.

3. In most cases, how have your candidates developed their leadership skills?

Most initially develop their leadership skills through leadership courses of sorts. The key is being able to take this knowledge and apply it to real life situations. This is where experience is crucial. A good leader may make mistakes on their first, second and third attempts. The key to a successful leader is to be able to learn from these failures and turn them into strengths.

Management Skills Questionnaire

4. Have life experiences helped your candidates develop their leadership skills? If yes, in what ways?

Yes, always. Some of the experience and skills learnt from adversity of successes in other areas of life can be very useful. Also, things such as sport can expose one to leadership opportunities.

5. How have your candidates gained conceptual and analytical skills? Do you think these skills can be taught effectively?

These can be very natural to some candidates but others can be taught through studies and additional courses.

6. How important do you think functional knowledge, such as accounting, finance, marketing and human resources, is for senior managers to possess?

These can be very useful for areas such as costing and budgeting and also resource management. This knowledge strapped on to a sound technical background give all the ingredients to a successful senior manager.

7. How important do you think technical skills are for upper managers to possess?

A basic understanding of technical skills is all that is needed. They will have people with these skills available to them so in-depth understanding is not necessary.

Management Skills Questionnaire

8. Have your candidates ever had to initiate change within your organisation? Do you consider the ability to do this an important skill for a leader to possess?

It really depends on what the organisation requires out of their managers. Some organisations require their company to take a new direction and this would require someone who possesses that kind of skill. However, others are interested in continue their business in the same direction and expanding in the same areas of expertise. These companies would not require a manager with these skills. Being able to initiate change is an important skill if that is what you want to specialise in.

9. How do your candidates come up with plans for change or the direction they would like the company to be going?

The management team usually come up with a strategic plan for change. Once the strategic plan has been finalized it will then be implemented by the same management team. They will each have milestones to achieve in certain timeframes. It is important that the management team frequently meet to update on their progress and any revisions to the plan be discussed.

10. Do you think it is important for companies to have a program to help identify and develop leadership skills in employees or can they source talent from elsewhere?

This is the ideal way of recruiting managers for your company. However, the ability to do this may be restricted to the size of the company. These companies may have to source their managers from outside the company.

Management Skills Questionnaire

11. Obviously senior managers are highly motivated. Have your candidates always been motivated or have they been motivated by others around them?

A good leader should be personally motivated. If you rely on others to motivate you, how can you be expected to motivate others yourself?

12. It is also important that senior managers motivate teams to achieve goals.

How do your candidates go about motivating people around them?

Setting realistic targets for their team is important so everyone know what they are aiming for. Once they are focused on that objective keeping them motivated is not so hard.

13. Do you think it is important for potential candidates for senior management positions to surround themselves with successful people in order to get recognition for their achievements?

Not for recognition but for reaching their achievement. Only by achieving goals do managers get recognition.

14. How have your candidates developed self-confidence and public speaking abilities? Are these qualities important in leadership roles?

By being given the opportunity for responsibility and also encouragement.

Confidence is key in a leadership role.

Management Skills Questionnaire

15. How important is it for a leader to be decisive and to be able to delegate tasks effectively?

If the leader doubts what they are doing then nobody trusts what they are doing is correct. By giving other people responsibility you give them the chance to grow and develop.

16. Do you think a leader should be ethical in his/her affairs? What ethical traits would you expect them to exhibit?

Leading by example is very important. They should have the same morals they would expect of the rest of their team.

17. Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

This would be advantageous but only in the right circumstance.

18. What skills do you think a senior manager of a national company should possess over and above that of a senior manager of a local company?

There should be no difference.

19. What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

20. How do you think leaders of local, national and international companies differ?

There should be no difference.

Management Skills Questionnaire

PART B

1. Using the scale below, how would you rate the importance of the following skills with regards to senior managers?

①	-	Crucial
②	-	Very important
③	-	Important
④	-	Advantageous
⑤	-	Not necessary

Analytical Skills

① ② ③ ④ ⑤

Conceptual Skills

① ② ③ ④ ⑤

Technical Skills

① ② ③ ④ ⑤

Interpersonal Skills

① ② ③ ④ ⑤

Public Speaking

① ② ③ ④ ⑤

Management Skills Questionnaire

Organisational Skills

① ② ③ ④ ⑤

Business Skills

① ② ③ ④ ⑤

Global Leadership Skills

① ② ③ ④ ⑤

Management Experience

① ② ③ ④ ⑤

Management Skills Questionnaire

2. Using the same scale how would you rate the importance of the following traits with regards to senior managers?

Decisive

① ② ③ ④ ⑤

Ambitious

① ② ③ ④ ⑤

Self-confident

① ② ③ ④ ⑤

Energized

① ② ③ ④ ⑤

Persuasive

① ② ③ ④ ⑤

Ethical

① ② ③ ④ ⑤

Trustworthy

① ② ③ ④ ⑤



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MANAGEMENT SKILLS QUESTIONNAIRE

Topic: A comparative review of attributes of engineers in senior management roles in small, medium and large organisations.

For: Murray and Associates Pty Ltd
Mr Andrew Campbell
Special Projects Manager

Undergraduate: Daniel Price

Supervisor: Steven Goh

Approximate Completion Time:

Part A: 30 minutes

Part B: 10 minutes

Number of Questions:

Part A: 20 questions

Part B: 2 questions

Date: July, 2007

Management Skills Questionnaire

PART A

1. Do you think engineers are good candidates for senior management roles?

Why or why not?

GENERALLY YES. BY THEIR NATURE THEY TEND TO BE ANALYTICAL AND THEREBY WHICH IS... PLUS. BECAUSE THEY GENERALLY DON'T GET OUT TO BE SENIOR MANAGERS, THEY KNOW WHAT EVERY PERSON IN COMPANY CONTRIBUTES, AS THEY WORK ALONG SIDE THEM IN ALL AREAS OF THE BUSINESS, AND CAN DEVELOP A GOOD UNDERSTANDING AND APPRECIATION OF THE STRUCTURE OF A COMPANY.

2. In your experience, what traits make a good leader?

GOOD COMMUNICATION SKILLS... BEING APPROACHABLE... A GOOD UNDERSTANDING THAT EVERYONE NEEDS TO BE APPRECIATED AND ALL THE PEOPLE IN A COMPANY ARE ESSENTIAL TO THE SUCCESS OF THE COMPANY. KNOWING WHEN THE DIFFICULT DECISIONS MUST BE MADE RELATIVE TO OPERATION OF THE COMPANY OR BE MADE UNDERSTANDING FINANCE, WHICH IS KEY.

3. Have others helped shape your leadership skills? If yes, in what ways?

YOU OBSERVE ALL THE LEADERS IN VARIOUS INDUSTRIES, SPORT AND POLITICS. I TRY TO FIND THE GOOD ASPECTS OF THEIR LEADERSHIP THAT I CAN RELATE TO AND THE TIMES WHEN THEY STRUGGLED TO GET SUPPORT AND WORK FROM OTHERS.

Management Skills Questionnaire

4. Have life experiences helped develop your leadership skills? If yes, in what ways?

YES, IN SIMILAR WAY TO THOSE MENTIONED ABOVE.
A FEW PEOPLE CLOSE TO ME ARE IN LEADERSHIP
ROLES. THERE ARE SOME FEELS THAT THEY ARE SUPERIOR IN
THEIR AREA BUT THERE ARE ALSO FEELS THAT I THINK
WOULD BE BETTER MANAGER, SO I TRY TO LEARN FROM
THEIR EXPERIENCE.

5. How have you gained conceptual and analytical skills? Do you think these skills can be taught effectively?

I THINK... MOST ENGINEERS GETS GOOD CONCEPTS AS
AN ANALYTICAL SKILLS. ANALYTICAL SKILLS ARE HARD
TO TEACH, IF SOMEONE SPECIALISE TO SOLVE AND
CONCENTRATE HOW CAN THEY BE ANALYTICAL OR
TAUGHT TO GET.

6. How important do you think functional knowledge, such as accounting, finance, marketing and human resources, is for senior managers to possess?

IT'S ONLY RECENTLY I ^{HAVE COME TO} APPRECIATE HOW IMPORTANT
KNOWLEDGE IS
ACCOUNTING AND FINANCE, BUT FOR OUR INDUSTRY
MARKETING IS NOT SO CRITICAL, IT'S DEPENDENT OF
PRODUCT AND WHOSE TARGET GET US MORE WORK.
HUMAN RESOURCE MANAGEMENT IS ALWAYS IMPORTANT

Management Skills Questionnaire

7. How important do you think technical skills are for upper managers to possess?

You can probably get by with little technical skills, but you will struggle to gain the respect of employees and may have to be working with a not ignorant people. The more technical skills you have the better.

8. Have you ever had to initiate change within your organisation? Do you consider the ability to do this an important skill for a leader to possess?

No, yes. It's nice you can bring change to. You want to avoid disruption and make the process in the organisation easier. The changes it comes with are necessary.

9. How do you come up with plans for change or the direction you would like the company to be going?

haven't yet. Being younger within the company has a long history and being generations at the helm is a positive. It's come to approach the future and technical changes, which involve change, without thinking about it.

Management Skills Questionnaire

10. Does your company have a program to help identify and develop leadership skills in employees? Is this important or can talent be sourced from elsewhere?

Our company is small enough that anyone who is employed can be a leader. I think our structure is such that everyone is on the same level of leadership. The decisions and orders come from both divisions, upper and lower tiers of the company. I wouldn't source from elsewhere.

11. Obviously senior managers are highly motivated. Have you always been motivated or have you been motivated by others around you?

No. That's where I source from time to time. I do get inspired by the drive of other people. It's something I need to improve.

12. It is also important that senior managers motivate teams to achieve goals.

How do you go about motivating people around you?

If people can see that their success depends on the success of the company then it's easy. It comes down to making people realize they are necessary to the success of the business and other companies. Over time working for everyone.

Management Skills Questionnaire

16. Do you think a leader should be ethical in his/her affairs? What ethical traits would you expect them to exhibit?

Yes. A leader should display the same ethics they wish their subordinates to display. Honesty, fairness, being open to change and accounting their mistakes.

17. Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

It certainly helps. Especially when with the skill enables them to understand completely the progress of competing interests across a region and if the company has international commitments then it would be essential.

18. What skills do you think a senior manager of a national company should possess over and above that of a senior manager of a local company?

I think it requires change a culture. Technical skills become less important as the size of the company increases. Project management and international business skills would be vital in world marketing. You would want to be surrounded with yourself with successful people.

Management Skills Questionnaire

19. What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

More in the same. You also to be able
to control a core group of national or
Regional managers and have a broader
understanding of what is necessary to
be successful internationally.

20. How do you think leaders of local, national and international companies differ?

Local leaders are more in touch with local
business enterprise issues.
National leaders are more in touch with
issues that affect success of a business
International leaders are more in touch with
global market economics.

Management Skills Questionnaire

PART B

Using the scale below, how would you rate the importance of the following skills with regards to senior managers?

①	-	Crucial
②	-	Very important
③	-	Important
④	-	Advantageous
⑤	-	Not necessary

Analytical Skills

① ② ③ ④ ⑤

Conceptual Skills

① ② ③ ④ ⑤

Technical Skills

① ② ③ ④ ⑤

Interpersonal Skills

① ② ③ ④ ⑤

Public Speaking

① ② ③ ④ ⑤

Management Skills Questionnaire

Organisational Skills

① ② ③ ④ ⑤

Business Skills

① ② ③ ④ ⑤

Global Leadership Skills

① ② ③ ④ ⑤

Management Experience

① ② ③ ④ ⑤

Management Skills Questionnaire

Using the same scale how would you rate the importance of the following traits with regards to senior managers?

Decisive

① ② ③ ④ ⑤

Ambitious

① ② ③ ④ ⑤

Self-confident

① ② ③ ④ ⑤

Energized

① ② ③ ④ ⑤

Persuasive

① ② ③ ④ ⑤

Ethical

① ② ③ ④ ⑤

Trustworthy

① ② ③ ④ ⑤



MANAGEMENT SKILLS QUESTIONNAIRE

Topic: A comparative review of attributes of engineers in senior management roles in small, medium and large organisations.

For: Murray and Associates Pty Ltd
Mr Ian Smith
Principle Consulting Land Surveyor

Undergraduate: Daniel Price

Supervisor: Steven Goh

Approximate Completion Time:

Part A: 50 minutes

Part B: 10 minutes

Number of Questions:

Part A: 20 questions

Part B: 2 questions

Date: July, 2007

Management Skills Questionnaire

PART A

1. Do you think engineers are good candidates for senior management roles?

Why or why not?

Yes they are, but only after additional training and through the evolution of age and professional practice. I would expect that an engineer with a combined double degree in economics/administration may progress to a senior role more quickly.

2. In your experience, what traits make a good leader?

- comprehensive industry knowledge to create trust + confidence
- honesty + integrity

3. Have others helped shape your leadership skills? If yes, in what ways?

- Have taken knowledge from those who exhibited leadership

Management Skills Questionnaire

4. Have life experiences helped develop your leadership skills? If yes, in what ways?

- basic lessons in youth and schooling roles as primary school captain, + sports teams
- many years 'bar work' while studying made skills use in dealing with all comers customers/clients
- related mostly to interpersonal skills.

5. How have you gained conceptual and analytical skills? Do you think these skills can be taught effectively?

- core principals and skills are inherent in ones own education and reflect on outlooks
- I think skills improvement can only be improved not instilled in a candidate (if they don't already have it).

6. How important do you think functional knowledge, such as accounting, finance, marketing and human resources, is for senior managers to possess?

Senior management must comprehend all these factors but not be totally conversant in them all, but rather to be able to draw on the appropriate skilled staff, and understand what they are about.

Management Skills Questionnaire

7. How important do you think technical skills are for upper managers to possess?

Lower order priorities that can be delegated.

8. Have you ever had to initiate change within your organisation? Do you consider the ability to do this an important skill for a leader to possess?

Yes, and this ability is critical while not being seen to be distant, removed or aloof.

9. How do you come up with plans for change or the direction you would like the company to be going?

Constant evolution with the dynamics of business, industry and governmental influence.

Management Skills Questionnaire

10. Does your company have a program to help identify and develop leadership skills in employees? Is this important or can talent sourced from elsewhere?

- Senior Directors always observe leadership abilities of workforce staff.
- Talent should be encouraged internally if practical before out source.

11. Obviously senior managers are highly motivated. Have you always been motivated or have you been motivated by others around you?

Personally motivated through upbringing.

12. It is also important that senior managers motivate teams to achieve goals.

How do you go about motivating people around you?

- encouragement of continuing education and personal improvement.
- lead by example and integrity.

Management Skills Questionnaire

13. Do you think it is important to surround yourself with successful people in order to get recognition for your achievements?

No, the people need to be conscientious and diligent. There is no need to be assessed as being 'successful' as such.

14. How have you developed your self-confidence and public speaking abilities?

Are these qualities important in leadership roles?

- always participated in debating + public speaking contests in primary + secondary school.

15. How important is it for a leader to be decisive and to be able to delegate tasks effectively?

100% without fail.

Management Skills Questionnaire

16. Do you think a leader should be ethical in his/her affairs? What ethical traits would you expect them to exhibit?

Ethics is a complex discipline. Honesty combined with diligence is respected. Respect then has flow on effects.

17. Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

Yes, lessons can be taken from all avenues, and also 'history' from each of the above categories.

18. What skills do you think a senior manager of a national company should possess over and above that of a senior manager of a local company?

I would parallel all skills, national or local have similar environments.

Management Skills Questionnaire

19. What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

Greater global knowledge of market forces and customs and languages.

20. How do you think leaders of local, national and international companies differ?

Some core skills differing market environments.

Management Skills Questionnaire

PART B

Using the scale below, how would you rate the importance of the following skills with regards to senior managers?

①	-	Crucial
②	-	Very important
③	-	Important
④	-	Advantageous
⑤	-	Not necessary

Analytical Skills

① ② ③ ④ ⑤

Conceptual Skills

① ② ③ ④ ⑤

Technical Skills

① ② ③ ④ ⑤

Interpersonal Skills

① ② ③ ④ ⑤

Public Speaking

① ② ③ ④ ⑤

Management Skills Questionnaire

Organisational Skills

① ② ③ ④ ⑤

Business Skills

① ② ③ ④ ⑤

Global Leadership Skills

① ② ③ ④ ⑤

Management Experience

① ② ③ ④ ⑤

Management Skills Questionnaire

Using the same scale how would you rate the importance of the following traits with regards to senior managers?

Decisive

① ② ③ ④ ⑤

Ambitious

① ② ③ ④ ⑤

Self-confident

① ② ③ ④ ⑤

Energized

① ② ③ ④ ⑤

Persuasive

① ② ③ ④ ⑤

Ethical

① ② ③ ④ ⑤

Trustworthy

① ② ③ ④ ⑤



MANAGEMENT SKILLS QUESTIONNAIRE

Topic: A comparative review of attributes of engineers in senior management roles in small, medium and large organisations.

For: Murray and Associates Pty Ltd
Mr John Campbell
Principle Consulting Land Surveyor

Undergraduate: Daniel Price

Supervisor: Steven Gob

Approximate Completion Time:

Part A: 30 minutes

Part B: 10 minutes

Number of Questions:

Part A: 20 questions

Part B: 2 questions

Date: July, 2007

Management Skills Questionnaire

PART A

1. Do you think engineers are good candidates for senior management roles?

Why or why not?

Yes. Engineers study the elements of science & understand why things are the way they are, & consequently can manage situations which occur.

2. In your experience, what traits make a good leader?

Firstly understanding people, & what motivates them.

secondly having an analytical mind, in order to detect logical directions in which to lead.

3. Have others helped shape your leadership skills? If yes, in what ways?

Yes. Everything I have ever learnt came from other people's mouths, all I had to be able to was to listen.

Management Skills Questionnaire

4. Have life experiences helped develop your leadership skills? If yes, in what ways?

Yes the experiences of listening to excellent teachers, speaking with highly motivated international sportsmen, & probably having some unfortunate things happen to you, toughen you up to be able to make hard decisions (unpopular)

5. How have you gained conceptual and analytical skills? Do you think these skills can be taught effectively?

I doubt that I have gained them - I feel they are somewhere within you. I doubt that they can be taught.

6. How important do you think functional knowledge, such as accounting, finance, marketing and human resources, is for senior managers to possess?

Important to a degree, but not so that one should hold some academic qualification.

Management Skills Questionnaire

7. How important do you think technical skills are for upper managers to possess?

It can be difficult to instruct people to perform tasks which you cannot perform yourself. A person's credibility has to be guarded to ensure that people don't perceive that person to not have skills which he or she may in fact possess.

8. Have you ever had to initiate change within your organisation? Do you consider the ability to do this an important skill for a leader to possess?

Yes. I don't consider it important because all change should be obvious, & if it's not it shouldn't be difficult to demonstrate so.

9. How do you come up with plans for change or the direction you would like the company to be going?

As above - change & the need for it should be obvious.

Management Skills Questionnaire

10. Does your company have a program to help identify and develop leadership skills in employees? Is this important or can talent sourced from elsewhere?

No program exists to identify skills as most people exhibit them. Those skills are developed within the company, generally by giving individuals opportunities to lead work groups in various disciplines.

11. Obviously senior managers are highly motivated. Have you always been motivated or have you been motivated by others around you?

I guess I've always been motivated. I don't believe you can have lasting motivation from third parties. I observed that in football dressing rooms before important games when I was fairly young.

12. It is also important that senior managers motivate teams to achieve goals.

How do you go about motivating people around you?

I believe that ⁽¹⁾ always applies. If you don't have it, you probably will not be on the team.

Management Skills Questionnaire

13. Do you think it is important to surround yourself with successful people in order to get recognition for your achievements?

No, but if you don't have successful (or capable) people around you - you probably won't get far. In this I mean that "surround" means within your business.

14. How have you developed your self-confidence and public speaking abilities?

Are these qualities important in leadership roles?

Not very well. These qualities are very important, if you have them use them. If you don't have them, you have to be smarter in other areas.

15. How important is it for a leader to be decisive and to be able to delegate tasks effectively?

Very important. If you can't delegate you probably won't get far, & decisions have to be thought out beforehand & made promptly.

Management Skills Questionnaire

16. Do you think a leader should be ethical in his/her affairs? What ethical traits would you expect them to exhibit?

Ethical is a misused word in professions when they speak of "codes of ethics". One of my mentors was not considered "ethical" within his profession - yet he was an extremely honest person. Honesty is far more important.

17. Do you think a leader should have knowledge of customs, laws, politics and cultures of other countries or groups?

All knowledge is useful, how useful it may be depends on the situation you are in. Certainly if you are dealing with people of any of these groups then you must have some knowledge of them.

18. What skills do you think a senior manager of a national company should possess over and above that of a senior manager of a local company?

For a national company one must have the knowledge as in (17). Other skills required in a National company would be the ability to communicate with the business world on a national basis.

Management Skills Questionnaire

19. What skills do you think a senior manager of an international company should possess over and above that of a senior manager of a national company?

Other than a second language, there may not be much.

20. How do you think leaders of local, national and international companies differ?

The difference would be in the people they communicate with, & how they go about that. Generally, I wouldn't see a great deal of difference in the character.

Management Skills Questionnaire

PART B

Using the scale below, how would you rate the importance of the following skills with regards to senior managers?

①	-	Crucial
②	-	Very important
③	-	Important
④	-	Advantageous
⑤	-	Not necessary

Analytical Skills

① ② ③ ④ ⑤

Conceptual Skills

① ② ③ ④ ⑤

Technical Skills

① ② ③ ④ ⑤

Interpersonal Skills

① ② ③ ④ ⑤

Public Speaking

① ② ③ ④ ⑤

Management Skills Questionnaire

Organisational Skills

① ② ③ ④ ⑤

Business Skills

① ② ③ ④ ⑤

Global Leadership Skills

① ② ③ ④ ⑤

Management Experience

① ② ③ ④ ⑤

Management Skills Questionnaire

Using the same scale how would you rate the importance of the following traits with regards to senior managers?

Decisive

① ② ③ ④ ⑤

Ambitious

① ② ③ ④ ⑤

Self-confident

① ② ③ ④ ⑤

Energized

① ② ③ ④ ⑤

Persuasive

① ② ③ ④ ⑤

Ethical

① ② ③ ④ ⑤

Trustworthy

① ② ③ ④ ⑤

Appendix B
Methodology Flow Chart

METHODOLOGY

