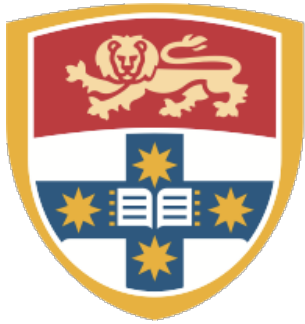


acceptance dignity creativity
freedom humour *moderation* duty
achievement *empathy* FUN
credibility modesty *friendship*
curiosity time adventure
daring **motivation**
delight fulfilment affection
objectivity JOY ambition
appreciation control *hope*
decency LOVE dedication
beauty APPROVAL passion *honesty*
bravery *effectiveness* enthusiasm
professionalism FAMILY sharing
energy talent eccentricity
idealism relaxation RESPECT
nurture reason integrity



THE UNIVERSITY OF
SYDNEY

Project Management Graduate Program

PMGT 5872 People and Leadership

Final Report

Explore A Range of Approaches to Motivating the Project Team

Lecturer: Alan Schwartz

Prepared by:

J Sun
()

Date	15 November 2010
Word Count	3433(excluding references and appendix)

Table of Contents

1. Case Study Solution	
- Explore a Range of Approaches to Motivating the Project Team.....	1
Executive Summary.....	1
1.1 Introduction	1
1.2 Motivation.....	1
1.3 Motivators.....	2
1.4 Motivating.....	5
1.5 Analysis and Recommendations	9
1.6 Conclusion	10
2. Competency Achievement Report.....	11
2.1 Self-Competency Assessment.....	11
2.2 Competency Development	11
2.3 Further Development.....	13
3. Reflective Learning Report.....	14
4. Commentary on Team Performance.....	15
5. Personal Professional Improvement Report	15
6. References	16
7. Appendix - NASA Autonomous Rotorcraft Project	17

1. Case Study Solution - Explore a Range of Approaches to Motivating the Project Team

Executive Summary

Different motivating approaches have been learned and employed in project teams. Project managers and leaders are constantly exploring new methodologies and strategies to deal with the rising challenges in today's project context. Psychologically, Abraham Maslow and Fredrick Hertzberg and other scholars have introduced different ways to manage motivation, which helped lots of managers and leaders better understand their team members. However, increasingly complex projects require managers and leaders to manage the balance between managing and leading, and to review successful experiences and discover the unique approaches to motive their project teams. These approaches may be based on the traditional theories, while they may be completely contradictory.

1.1 Introduction

ENTHUSIASTIC and motivated people are essential for an organization to be successful. A project team with motivated team members has greater chance to achieve its business objectives and has an advantage over its competitors. Greater expectations have been created for project teams while more and more businesses are becoming globalized and projectized. As a result, project managers have been spending large amount of time exploring how to build well-motivated project teams, making the art of motivation more important than ever. *Motivating the Project Team* aims to explore a range of effective strategies and actions for motivating and inspiring the project team, and to help project managers enhance team effectiveness and performance for better performance.

1.2 Motivation

Motivation has been a much discussed topic in management and supervisory circles for years and yet it remains a complex, elusive concept (Mackay, 2007). Although there have been principles about motivation introduced by researchers such as Abraham Maslow, Fredrick Herzberg, David McClelland and Douglas McGregor and the like, how to apply the theories to practices seems to be a greater challenge.

Definition

motivate - verb

1. to cause someone to behave in a particular way;
2. to make someone want to do something well.

- Cambridge Advanced Learner's Dictionary

The definition is a good illustration of the concept of motivation. On the one hand, it indicates that motivation is where someone (a team leader) causes someone else (a team member) to act in a certain way. On the other hand, it appears that motivation is something that makes someone want to achieve something and makes them willing to work hard in order to do this.

When people find their work exhilarating, they perform at their best. This special state of mind is called "flow" (Goleman, 1998), which is the ultimate motivator. Generally speaking, people learn to the degree they are motivated (Goleman, 1998), and motivation influences the entire learning process (Quinones and Ehrenstein, 1996). For example, motivated student can learn much more efficiently and effectively. Without motivation, nothing happens.

When organizations want to innovate or make changes they often set up project teams to produce recommendations (Smith, 2004). Examples include the reengineering of an organization (*change management at Mobil Oil Australia*); the building of the monuments or landmarks (*Sydney Opera House*); the exploitation of minerals or energies (*BHP Billiton's Yandi Mine Project*); or a scientific research on climate change (*Murray Darling-Basin Sustainable Yields Project*). University assignments may also be regarded as projects. The project team is usually made up of people from different departments who collectively bring a wide range of experience and expertise together. In the project environment, without the functional hierarchies, distinctions of title, rank, symbols of power and status do not exist, thus many traditional motivators are no longer available (Turner, 1999). Facing challenges such as technological complexities, management approaches, conflicts and priorities, cultural differences, and the coordination of multiple organizations, project managers should be extremely proficient at holding the team together towards a common goal in order to deliver satisfying results.

How does a project manager motivate the team to maintain effectiveness and commitment? First let's look at how project environment influences motivation.

Impact of the Project Environment

In terms of organizational structure, project environment has a significant impact on motivation.

Within a matrix organization, people do not have the clear indicators of title, status and rank (Turner, 1999). Personnel often report to both a functional manager and one or more project directors. For example, the ARP manager had two supervisors to report - NASA and CICT. Consequently, the two "bosses" might have different priorities for the project or ways they wanted information relayed to the team. In such a situation, although project managers try to motivate the individuals towards the project achievements, they often give their primary loyalty to their functional manager, because that manager has greatest influence over their long-term career development (Turner, 1999). To some extent, it is difficult get team highly motivated and to satisfy different supervisors at the same time. However, the ARP manager did well in balancing both. He proactively communicated with stakeholders and upper management at NASA for approval on all tasks, and in time provided project updates to potential customers. At the same time, he met the needs of each team member and communicated individual responsibilities. He also sought each member's opinion to find the best possible solution. His great commitment and responsibility enhanced the development of a highly motivated project team.

However, as NASA's structure is becoming flatter (NASA, 2010), individuals have less opportunity for career advancement, as there are fewer levels to occupy (Turner, 1999). Also there are not enough words of encouragement (Wilmot, 1989). Accordingly, a feeling of detachment may be created if the individual does not entirely understand the direction or strategy of the company, or how their project contributes to it. Therefore, they will not have the opportunity regularly to question the reasons for strategic decisions, or to suggest alternatives, resulting in low morale. However, the ARP manager established motivational tools and near-term focus deadlines to ensure success, and held regular meetings to demonstrate teams' accomplishments. He also kept team members informed and updated about the progress of the project via the project website, so that team members were able to be motivated and inspired to perform well as they knew their contributions would build up the success of the project.

1.3 Motivators

Generally, most people still struggle to understand what motivates people, including managers, psychologists, coworker, teachers, and parents. When talking about what motivates people, we often think of *Maslow's Hierarchy of Needs* (Maslow, 1943) and *Herzberg's Motivation Factors and Hygiene*

Factors (Herzberg et al., 1959). Besides, there are other theories - *McClelland's Acquired-Need Theory* and *McGregor's X/Y theories*, and so forth.

Maslow's Hierarchy of Needs Theory

Managers can better motivate team members by understanding Maslow's concepts of human motivation (Milgram et al., 1999). His hierarchy of needs (Figure 1) explains motivation and behavior as the result of different fundamental needs that drive individuals. Each need must be satisfied before the next can be addressed. As the needs move up the pyramid lower one's motivational impact declines or disappears. Turner (1999) points out many traditional views on motivation are not valid today. However, Maslow's hierarchy continues to provide a basis for motivational factors based on people's different needs. By using this model, project managers can know better their team members about their interests and their aspiration, and therefore can adapt the organization's as well as their own approaches to the changing situation.

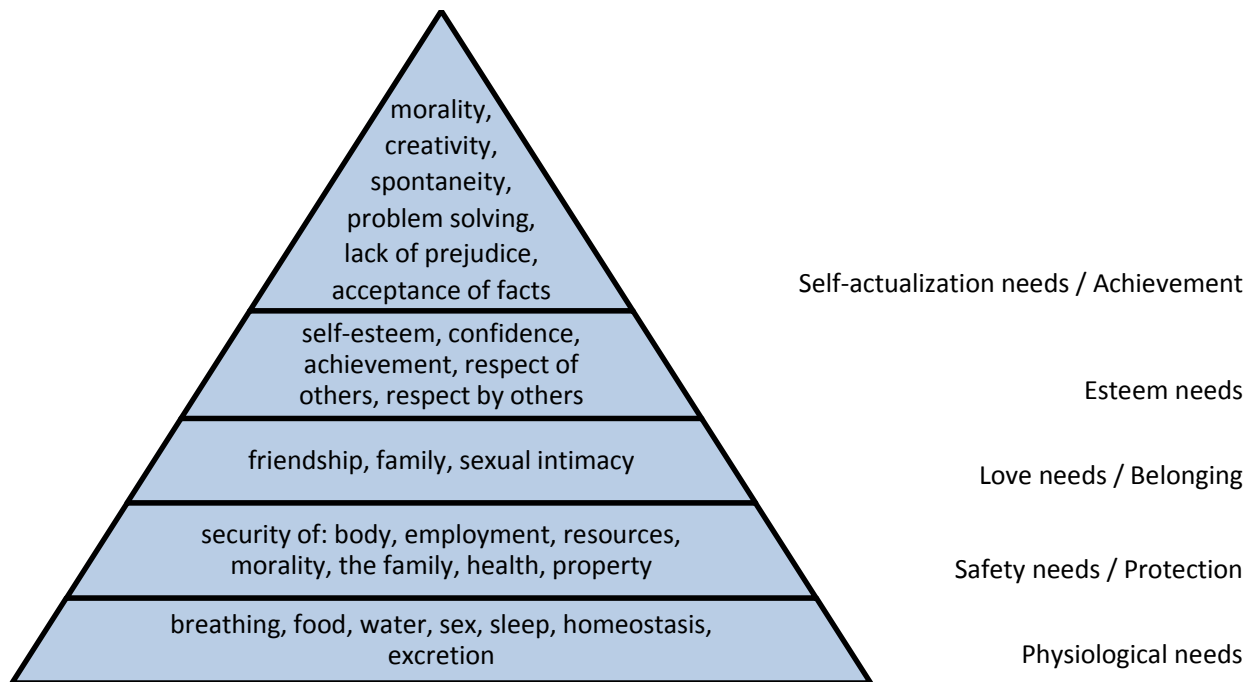


Figure 1 Maslow's hierarchy of needs (Maslow, 1943)

Herzberg's Motivation-Hygiene Theory

Herzberg divided sources of motivation into “motivation factors” and “hygiene factors” (Figure 2). The two sets of factors conclude that relationship between motivation and satisfaction of workers. Hygiene factors help prevent dissatisfaction and they are primarily extrinsic. They do not motivate but if they are not dealt with, they can turn people off. Motivation factors lead to job satisfaction and higher levels of motivation. However, if they are not activated, they will remain neutral; and they are primarily intrinsic. “Hygiene factors are merely a launch pad - when damaged or undermined we have no platform, but in themselves they do not motivate” (Chapman, 2003). For example, having a dirty office is irritating, but having the cleanest office in the world isn't motivational. Moreover, there is always the controversy over whether salary is a motivation factor or a hygiene factor, and this will be discussed in the analysis part.

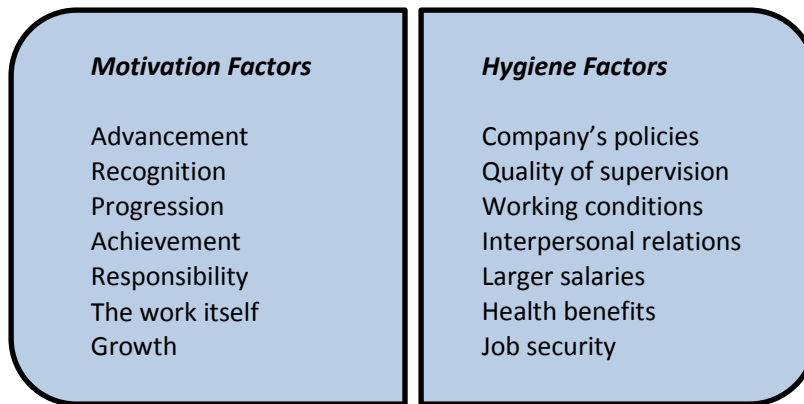


Figure 2 Herzberg's motivation-hygiene theory (Herzberg et al., 1959)

McClelland's Acquired-Need Theory

David McClelland's Acquired-Need Theory shows that an individual's specific needs are acquired or learnt over time and shaped by life experiences. The main categories of acquired needs (Table 1) include achievement, affiliation, and power (Schwalbe, 2009).

Table 1 Categories of McClelland's acquired needs (Schwalbe, 2009)

Categories of acquired needs	Explanation
Achievement	People with a high need for achievement seek to excel and tend to avoid both low-risk and high-risk situations to improve their chances for achieving something worthwhile.
Affiliation	People with a high need for affiliation desire harmonious relationships with other people and need to feel accepted by others.
Power	People with a need for power desire either personal power or institutional power.

McGregor's Theory X and Theory Y

McGregor's work was based on Maslow's hierarchy of needs (McGregor, 2002). He grouped Maslow's hierarchy into "lower order" (Theory X - workers who dislike and avoid work if possible) needs and "higher order" (Theory Y - individuals who do not inherently dislike work, but consider it as natural as play or rest) needs. He suggested that management could use either set of needs to motivate employees.

Turner's Five Effective Motivation Factors

Turner (1999) also identified five motivation factors (Table 2) after analyzing Maslow's hierarchy of needs. As lower levels of need have been satisfied, people look to satisfy their needs for esteem and achievement. Knowledge workers are particularly this kind of people (Smith, 2004).

Table 2 Turner's five motivational factors

Factors	Explanation
Purpose	People believe in the importance of their work and its contribution to organizational development.
Proactivity	People want to manage their own career development.
Profit sharing	Sharing the rewards of an entrepreneurial culture.
Progression	Increasing learning experiences, esteem and self-achievement.
Professional recognition	Being recognized for professional competence.

The efficiency of these five factors varies throughout the project life cycle (Table 3). Highest potential motivation appears at the start and finish of a project life cycle. However, those factors which have high ability to motivate also have a high ability to demotivate if the appropriate action is not taken, or if the project goes badly wrong. For example, if the project has been unsuccessful, as approaching the end, there can be a rush to leave the project, resulting in the incompleteness of the task.

Table 3 Variation of motivational factors throughout a three-stage project management life cycle (Turner, 1999)

Factors	Definition	Execution	Close-out
Purpose	High	Low	High
Proactivity	High	Medium	High
Profit sharing	High	Low	High
Progression	High	Low	High
Professional recognition	Medium	Medium	High

1.4 Motivating

Team Formation and Maintenance

A project manager brings together a group of people and develops among them a perceived common identity, so that they can work together using a set of common values or norms to deliver the project's objectives. Project teams typically go through five stages of formation - forming, norming, storming, performing, and mourning (Turner, 1999). During these five stages, project teams' motivation and effectiveness goes through a cycle. It decreases before increasing to reach a plateau, and then either increasing or decreasing towards the end (Figure 3). The project manager's role is to structure the team formation processes in a way that the plateau is reached as quickly as possible, the motivation and effectiveness at the plateau are as high as possible, and the momentum is maintained right to the very end of the project (the red line in Figure 3). In addition, by assessing how well the individuals' and team's aspirations and motivational needs have been satisfied (Turner et al., 1996), the manager should be able to determine the indicators of the team effectiveness, such as attendance, goal clarity, high outputs, and strong group cohesion, etc.

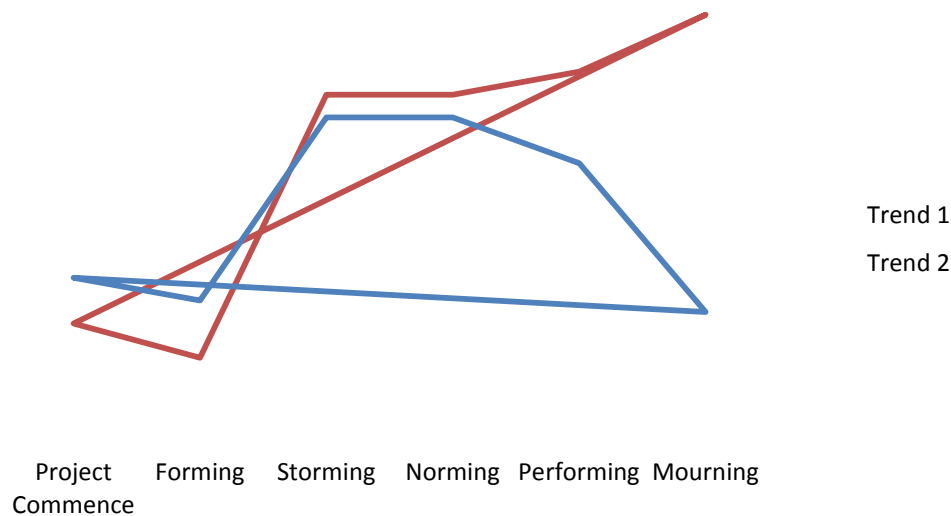


Figure 3 Two trends of project team' motivation and effectiveness throughout the five stages of formation

Leader as Motivator

Good leaders have a significant influence on the extent to which their people work with enthusiasm and seek to achieve excellent results; and they can play a significant part in improving the motivational climate and in removing obstacles to individual motivation (Smith, 2004). Often the difference between a good and an excellent project is the ability of the project leader or manager to develop a motivated team (Schwartz, 2010).

There has always been great misconception about leadership and management. Undoubtedly they are different. A person can be a good, effective manager, without being an inspirational leader; and yet another person can be an inspirational leader, while being a fairly chaotic manager. Being an inspirational leader and effective manager is challenging. When undertaking a complicated project that involves various parties, the project manager's leadership competencies - inspiring, motivating, and coordinating all team members - could be the key to success.

There are three main things that a leader can do to motivate the team in order to create the conditions for outstanding performance (Smith, 2004). Firstly, the leader should be self-motivated. Secondly, to some extent, leadership skills, if deployed frequently, can lead to better motivation. Thirdly, it is obvious that most people prefer to work and deal with problems in their own ways. Therefore, allowing for flexibility in working methods, as long as the output is not hindered, can help to maintain a high level of motivation.

In the case study, the ARP manager was a positive role model as a leader. His strong sense of responsibility built up his credibility. Instead of controlling or commanding, he directed his team by establishing motivational tools and near-term focus deadlines. He allocated additional resources and supplemental information to the team, and spent more time and energy into scheduling to ensure there would not be delays. All team members were motivated by the project manager and believed they were indispensable to the project. Without the project manager's inspiration and motivation, the team could not have performed excellently.

Paths to Outstanding Performance

Both Michael LeBoeuf (1985) and Geoff Smith (2004) have discovered guiding principles for motivating and inspiring professional teams. Although LeBoeuf's viewpoints were almost 20 years older than Smith's, they still work in today's context. After comparison, I conclude them as follows (Table 4):

Table 4 Principles and strategies to leading professional teams

	<i>Principles</i>	<i>Explanation</i>	<i>To reward</i>	<i>Instead of</i>	<i>Rewards</i>
1	Demonstrate your own drive for result.	Be energetic and enthusiastic. Act as role models.	The starting point is the team leader's own motivation, energy and enthusiasm for achieving results, which has a positive effect on the motivation of others.		
2	Give recognition and acknowledgement for performance.	Every member's contribution should be recognized; even it is a trivial one.	Quietly effective behavior	Squeaking joints	Freedom and autonomy
3	Increase responsibility and empower team.	Make decision making faster and more effective.	Decisive action	Paralysis by analysis	A piece of the action
4	Provide more interesting and challenging work.	The lack of interesting and challenging work usually results in high staff turnover, reducing morale and motivation among the team.	Risk taking	Risk avoiding	Recognition
5	Emphasize the interdependence of everyone's work.	Everyone is a part of the team. Whether the tasks are important or not, their contributions will ultimately build up the success.	Working together	Working against	Prizes
6	Encourage the provision of ideas.	Teamwork can be enhanced when team members are going through motivational, brainstorming sessions together. Be cautious that it is critical to adopt the good ideas.	Applied creativity	Mindless conformity	Time off
7	Get to know your team members really well.	Encourage both formal and informal communications. Be attentive to team members' emotional changes, and give them encouragement and comfort if their personal lives are not going well.	Simplification	Needless complication	Advancement
8	Create an enjoyable working environment.	Work with fun. Google provides an easy and relaxing working environment where employees work with high motivation. (Google, 2010).	Loyalty	Turnover	Fun

9	Inspire people to provide outstanding performance.	Inspire and motivate team members to excel by developing optimism and a positive team atmosphere. Energy, enthusiasm, a genuine interest in others, listening well, good humor, and willingness to nurture people's creative spirits are all important accompaniments.	Smart work	Busywork	Favorite work
10	Play to people's passions.	Different people do things in different ways. Get to know the different activities that 'turn your people on' and match assignments accordingly.	Quality work	Fast work	Personal Growth
11	Share the success.	Think about the benefits the team can expect from succeeding when being motivated.	Talking behind backs	Assistance and support	Happiness and sense of achievement

Taking Actions

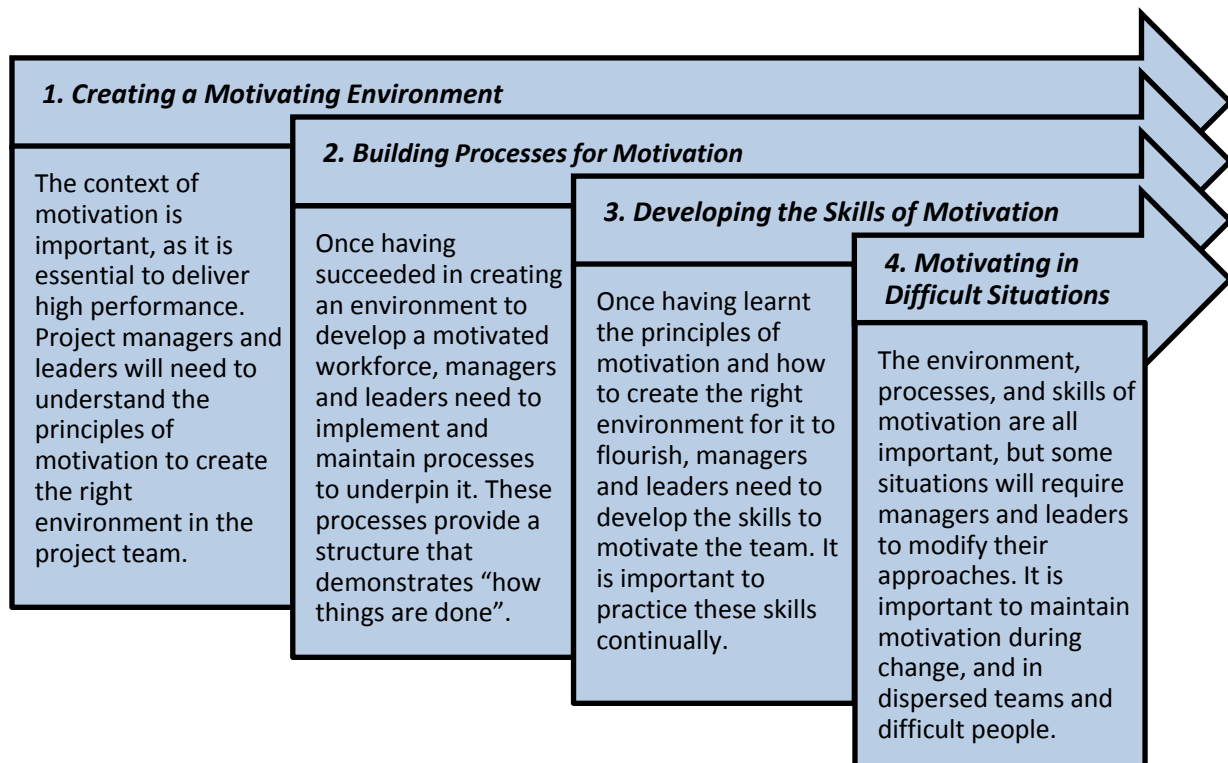


Figure 4 Actions for motivating team members (Bourne and Bourne, 2009)

Having included the theories and principles of motivating and inspiring people, it is time to put them into practice. We separate the whole process of motivating a project team into four sections: creating a

motivating environment, building processes for motivation, developing the skills of motivation, and motivating in difficult situations (Figure 4).

1.5 Analysis and Recommendations

In this section the “money” issue will be discussed and some recommendations will be given.

The “Money” Issue

“Money” has been always the No. 1 topic throughout history since its creation. Herzberg (1959) believed money is a hygiene factor instead of a motivation factor. Normally, if people are paid fairly, they are satisfied; but paying above the norm doesn’t motivate people (Herzberg et al., 1959). Turner (1999) also stated that in the project environment, without the existence of distinctions of title, rank, symbols of power and status, traditional motivating factors no longer work. In the modern society, money seems to be an overrated incentive. Therefore, we need to think beyond money, focusing on other benefits that can motivate people including recognition, advancement, and development. “There are two things people want more than sex and money ... recognition and praise”, said Mary Kay Ash (Ash, 2003), the founder of Mary Kay Cosmetics.

Nevertheless, did you hear about the clothing manufacturer who turned out thousands of sweatshirts with “Money is not everything” printed out on them? He went bankrupt. In the world of work, money is power, prestige, security and the path to success (LeBoeuf, 1985). Money remains a common yardstick by which people can measure their growth and learning within and through the organization (Turner, 1999).

Money is not everything, but without money we can’t do anything. It is important to have a clear understanding of the difference between extrinsic incentives like salary and conditions, and the intrinsic ones that lie deep within human nature. People are more likely to be motivated to perform well if they have interesting work, more responsibility rather than less, challenging assignments, an opportunity to develop their skills and recognition for their efforts (Smith, 2004). For example, managers should give high achievers challenging projects with achievable goals. Achievers should receive frequent performance feedback, and although money is not an important motivator to them, it is an effective form of feedback (Schwalbe, 2009). Managers and leaders should search, continually, for ways of improving those intrinsic incentives that can reach deeply into people’s psychological make-up and bring the best out of them.

Motivating Tips

Some tips are listed below (Table 5) for managers and leaders to better motivate project teams.

Table 5 Tips for project managers and leaders to motivate teams

Be a good listener	Gain trust	Review performance	Act quickly	Show endurance
Empathize with team members	Motivate for everyone’s benefit	Encourage team spirit	Stimulate viewpoints	Open it up
Be clear	Think laterally	Be proactive	Stay on track	Use ingenious ways to praise

Be aware	Manage expectation	Match training with ability	Regulate	Equip team members
Stay positive	Pull together	Evaluate objectives	Set relevant goals	Choose own style
Assess own role	Be enthusiastic	Check the response rate	Keep asking for feedback	Be persistent

1.6 Conclusion

Having taken into account motivation, motivators, and how to motivate, it is clear that motivating project teams is one of the most difficult tasks for managers and leaders. However, if they have good mastery of motivational skills and use them astutely, team productivity can be significantly improved, resulting in greater team performance. Different motivating principles and theories are fundamental, while practices need to be taken in accordance with them. Strategies and courses of action for motivating project teams are essential but they may vary in different situations. Also, managers and leaders need to consider those situations when facing more than one supervisor; and it is a necessity for good balance between managing the project team and motivating the team members. “Money” issue still remains unsolved, and the intrinsic and extrinsic incentives need to be well differentiated. With the tips of motivating, managers and leaders should be able to respond to any challenges that rise when motivating the project team. While new biases and issues continue to emerge as the strategies for managing more globalized projects evolve, the methodologies from this article are worth further study. All in all, a well-motivated project team can achieve far beyond what it is supposed to.

2. Competency Achievement Report

2.1 Self-Competency Assessment

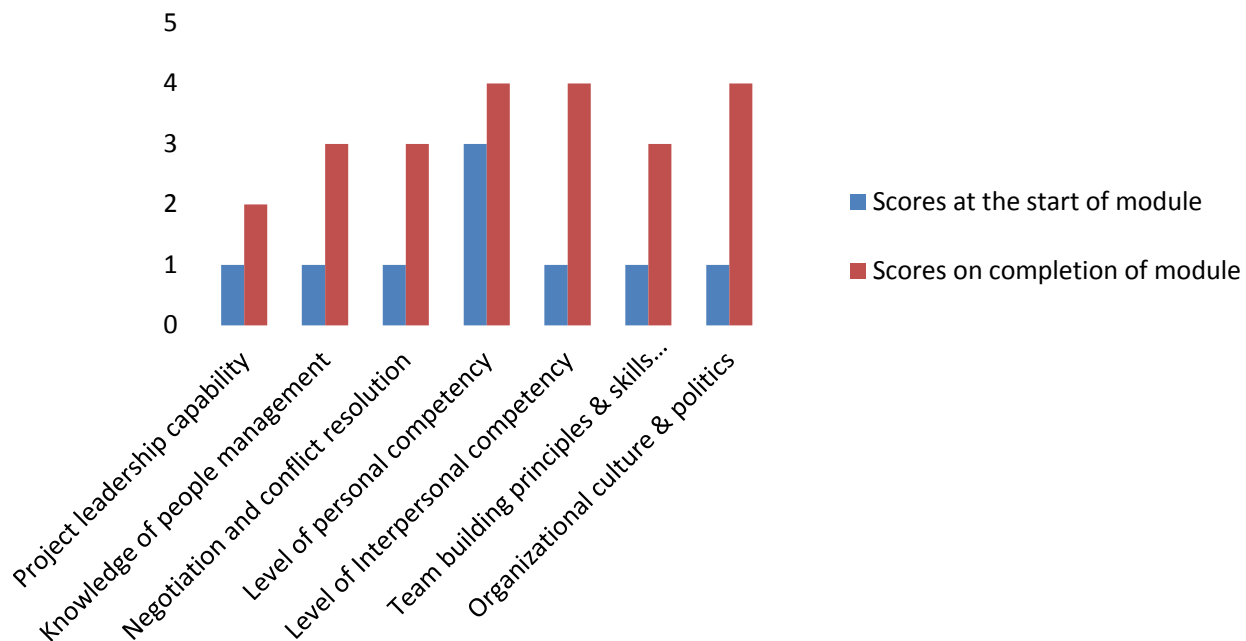


Figure 5 Self-competency Assessment

2.2 Competency Development

The self-competency assessment sheet (Figure 5) has covered essential knowledge areas. Whereas other aspects where I have become better after taking this course are: psychology of teams, forming a team, and stakeholder management. My personal competency development of different knowledge areas will be described in the following several paragraphs respectively.

People management

The transaction from electrical engineering to project management is not easy, and the most significant difference is the orientations - sheer calculation and people management, or, science and arts. At the beginning, I knew little about HRM, but after taking this course plus doing research and reading books and articles, I have learnt that HRM is not only about employment, but also dealing with other aspects such as economics, TQM, ethics, laws and regulations, motivation, team work, and so forth. The comprehensive knowledge of HRM helped me gain a better understanding about people issues in different organizations.

Project leadership capability

Through assignments and case studies, and literature research and analysis, I have realized that leadership is extremely indispensable. Scholars' traditional leading theories - "hard skills" are not available any more nowadays. Leaders should master "soft skills" such as coordination, delegation, collaboration, empowerment, teambuilding, and conflict management, etc. Leadership is an attitude, instead of a position.

To be an inspirational leader and effective manager continues challenging lots of people. Doing assignment is like undertaking a project, and it requires the leader not only to pull all team members together by motivating and inspiring, but also organize, control and solve problems by successful management.

Negotiation and conflict management

Conflicts are inevitable. At the beginning, we had conflicts on assigning people with different tasks. Because of the unfamiliarity of each other, we chose to compromise, which turned out to be not a bad solution. After studying conflict management, I have understood that conflicts are not always bad, and sometimes it can enhance team performance if managed properly.

Personal competencies

Personal competencies need to be developed before we can lead others. Through working in groups, I realized that my previous personal competencies were very poor to deal with new problems arising in unfamiliar areas. Self-confidence is the primary ability a person should have. Without it people can't do thing well, or they can't express themselves at all. Although I am still a shy person (I was even shier before), I have gained confidence to come with solutions when facing problems. Also, setting a realistic goal is also important for self-development. Now I am much better at assessing myself in different aspects - study, life, and work. I have been always holding a view that being adaptable can make people deal with difficult situations better.

Interpersonal competencies

This is the area where I have improved most. I used to be a good listener, but by overemphasizing it I overlooked the importance of expressing own ideas. After taking this course, I have achieved a certain level of communication skills. Now I can clearly express my ideas in a well-organized way. How to cope with the relationships with different people is still a tough job for me, although I have improved a lot. My other interpersonal competencies such as coaching, mentoring, negotiation, and decision making, have all improved dramatically.

Team building principles and skills in applying tools

How to build a high-performance team by getting different people together is difficult. I hadn't actually worked in a team before. Working in a team is not like what I thought before, and to maintain the team's productivity is also challenging. After taking this course, I have had a better understanding about the theories and models when forming a project team. Although our assignment team only lasted a short time, we have achieved satisfying results. In addition, the different cultures and academic backgrounds may be an obstacle when communicating in a team. However, if we proactively consider all the aspects before building teams, there would not be problems.

Organizational culture and politics

Although I don't have any working experience, my understanding of organizational culture and politics has improved significantly by doing research and reading books and articles. Understanding the culture and politics is essential before being involved in projects in an organization. From knowing little about project-oriented organizations to being capable of analyzing and comparing different companies' cultures and politics, I have read lots of examples and case studies about how culture and politics influence an

organization, and thus influence the project teams. Also, conflicts are more a result from organizational culture and politics, and a good understanding of both can help cope with conflicts

Stakeholder Management

Stakeholder is an indispensable and the heaviest component of a project. After taking the course and reading relevant books, I have developed a better understanding of managing different stakeholders. Implementing a stakeholder analysis is very important as it can either succeed or fail a project. Even a competitor involved in the project is a stakeholder. How to build proper communications and relationships with competitors is also crucial.

2.3 Further Development

In the future, I will focus on those areas I'm still not good at, such as total quality management, innovation, contingencies, communication, psychology of teams, self-deprecating sense of humor, and self-control.

In sum, I am satisfied with the achievement and improvement I have made through attending this course. Especially, my communication skills, motivation, and other interpersonal competencies have improved dramatically. How to put these theories into practice seems to be the next step for me, which will be more exciting but also challenging. Further study and research need to be undertaken for self-development; and due to the fast-changing global environment, new skills and theories need to be applied.

3. Reflective Learning Report

This course offered me a great opportunity to explore the four aspects of project human resource management. When people from different backgrounds work in a team, the way they behave and think has great impacts on the result of the project. Project managers and leaders also play a significant role in project teams, as they lead and motivate team members to perform well and achieve goals.

By attending lectures and doing team assignments, I have had many discussions with my colleagues, and the hottest topics are: “do we really need a leader”, “we are all leaders”, and “we don’t need a leader”. It sounds stupid, but we are doing “people and leadership”. Obviously, this led to conflicts. Our team is a multi-national team without a native English speaker. The interesting thing is that the different culture didn’t actually affect the team performance. It was the English language that inhibited our communication - the diverse accents. We ended up sending emails to avoid face-to-face discussion. However, that’s what internet has brought to us - convenience. As globalized projects become more common, the composition of the project team turns out to be more and more complex. It is possible that everyone comes from different non-English speaking areas. Organizations should take this into consideration, although it won’t contribute the worst influence to the project. Back to the question “do we need a leader”, I think it implied that people didn’t really know their capabilities, or they had all climbed too high on their ladders and needed to come down several steps, or they just didn’t want to take the responsibilities of being a leader. To clarify these, more discussions should be done.

However, why is it that there are still lots of projects under-performing? Yes, it is the people factor. Although the project scope, time, and cost have all been planned perfectly, the project still may fail because of a certain team member. Everybody is different, without exception. We can imagine the difficulties when a project manager gets a group of engineers together and makes them work as a team with high productivity. Those rules of thumb or traditional skills of managing people seem to be not working any more. People change so fast that they won’t be bothered of buying in manager’s good will. Generation X has been almost been forgotten. What does generation Y have? - the Internet. They are young, enthusiastic, energetic, and a little bit arrogant, and their lives are filled with Apple and Facebook. Although the traditional skills are fundamental, new personal and interpersonal competencies should be introduced. Mark Zuckerberger (founder and CEO of Facebook) is leading a global project - *Making the world more open and connective*. Every Facebook user is a team member. But how can it be successful? - people’s shifting notions of privacy, revelation, and sheer self-display. The reason why Mark could grasp people’s curiosity of privacy is that he majored psychology at Harvard. This is only my point of view of today’s project context, and we can see technology especially Internet has had a significant impact on people management. From my point of view, doing psychology or sociology courses will greatly improve the understanding the people issues when leading a project team.

Overall, I have learnt a lot from the lecturer and experienced participants, and learnt many interesting projects, which enabled me to apply the theories to real world practices. My significant personal improvement would be the interpersonal competencies, although managing relationships is still one of my weaknesses. After reading *The Art of Systems Thinking: Essential Skills for Creativity and Problem Solving*, I developed a better understanding of the importance of systems thinking. System thinking is widely used, whether when we manage project teams in an organization, or when we try to solve problems that happen in our daily life. We need to think out of the box and learn how to learn. In my future academic life, I will keep studying for continuous self-improvement.

4. Commentary on Team Performance

As a normal project team, we have gone through forming, storming, norming, performing, and mourning. Our team performance was like the red line in Figure 3 in the Case Study Solution. We had low motivation at the beginning when we started the first group assignment. We set up a Google Group for discussions and file sharing, however, the feedback rate was really low. Alan's advice is good - setting regulations when building up teams. For example, emails must be replied in 24 hours. Nevertheless, we were back on the right track after the first assignment. The good thing was that everybody has been responsible and made great contributions, and had positive attitudes and provided timely feedback.

Firstly, it is important of having a leader in the project team. "With great power comes great responsibility." We need to take the responsibility and face any mistakes we might make as a leader, learn lessons, and prevent them from happening again.

Secondly, it is also important to complete the Confidential Peer Evaluation (CPE). Team members took it for granted and agreed to give everybody 100%. This is the manifestation of not daring to take responsibilities. I think the reason is relationships. The fear judging people ended up with compromise. In fact, we are not managers, nor are we experienced professionals. We should not judge, instead, we are supposed to learn and give out. However, we have the rights and opportunities to evaluate the performance of the team and each team member, and therefore we are able to find the problems and solutions. If we just want everybody happy instead of recognizing or acknowledging our weaknesses and strengths, we can't make progress. As a result, we lose the opportunity to assess and improve ourselves, as well as the team.

In this case, different team start-up models might useful, such as Meredith Belbin's team management model. Different roles should be well defined to each team member for better adaption and adjustment to different situations. Also, avoid working as a virtual team is another possible solution.

5. Personal Professional Improvement Report

People and leadership skills and competencies should be continuously developed. My focus on future improvement includes: communication, systems thinking, innovativeness, carefulness, assertiveness, relationships, and problem solving. Communication is indispensable, whether it is in study, or work, or other fields. Although with the help of modern technologies such as computer and internet, we can make our communications more convenient, we still need to speak in front of people instead of computer screens. After all we are human beings, and we are not living in the virtual world.

6. References

- ASH, M. K. 2003. *Miracles Happen: The Life and Timeless Principles of the Founder of Mary Kay Inc.*, Harper Paperbacks.
- BOURNE, M. & BOURNE, P. 2009. *Motivating People*, Dorling Kindersley Limited.
- CHAPMAN, A. 2003. *Herzberg's Motivators and Hygiene Factors* [Online]. Available: <http://www.businessballs.com/herzbergdiagram.pdf>.
- GOLEMAN, D. 1998. *Working with Emotional Intelligence*, Bantam Books.
- GOOGLE. 2010. *Company overview* [Online]. Available: <http://www.google.com/intl/en/corporate/>.
- HERZBERG, F., MAUSNER, B. & SNYDERMAN, B. 1959. *The Motivation of Work*, Wiley.
- LEBOEUF, M. 1985. *How to Motivate People*, The National Library of Australia.
- MACKAY, A. 2007. A Definition of Motivation. *Motivation, Ability and Confidence Building in People*. Oxford: Butterworth-Heinemann.
- MASLOW, A. 1943. *A theory of human motivation* [Online]. (C) 1943 by the American Psychological Association. Available: <http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=ovfta&NEWS=N&AN=00006832-194307000-00002>.
- MCGREGOR, D. 2002. Theory X and Theory Y. *Workforce*, 81.
- MILGRAM, L., SPECTOR, A. & TREGER, M. 1999. Maslow's Hierarchy of Needs. *Managing Smart*. Boston: Gulf Professional Publishing.
- NASA 2010. National Aeronautics and Space Administration. In: 433034MAIN_AGENCY_ORG_STRUCTURE_3-23-2010.PDF (ed.) *NASA's organization Chart (March 2010)*. NASA.
- PMI. 2005. NASA Autonomous Rotorcraft Project. Available: http://www.pmi.org/Business-Solutions/~media/PDF/Case%20Study/Case_NASA%20Rotocraft.ashx.
- QUINONES, M. A. & EHRENSTEIN, A. 1996. *Training for a Rapidly Changing Workforce: Applications of Psychological Research*, Washington, DC, American Psychological Association.
- SCHWALBE, K. 2009. *Information Technology Project Management*, Cengage Learning.
- SCHWARTZ, A. 2010. *Team Start-up Guide*, Sydney, The University of Sydney.
- SMITH, G. 2004. *Leading the Professionals - how to inspire & motivate professional service teams*, Kogan Page Limited.
- TURNER, J. R. 1999. *The handbook of project-based management*, McGraw-Hill.
- TURNER, J. R., GRUDE, K. V. & THURLOWAY, L. 1996. *The Project Manager as Change Agent*, McGraw-Hill.
- WILMOT, J. 1689. *The King's Epitaph*.

7. Appendix - NASA Autonomous Rotorcraft Project

Part of NASA's mission is to consistently develop innovative flight technologies to help advance America's prowess in aerospace and aviation. NASA embarked on the Autonomous Rotorcraft Project (ARP) as part of that mission.

The project goal was to develop an unmanned helicopter (rotorcraft) that would operate with the decision-making skill of a piloted aircraft.

Facing technological complexities, management challenges and the coordination of multiple organizations, NASA used project management competencies to meet its goals while staying on-time and on-budget.

Background

The ARP posed several challenges. Representatives from the Army/NASA Rotorcraft Division, the NASA Exploration Technology Directorate and the Flight Projects Office (FPO) made up the ARP team, which was comprised of experts in aeromechanics and flight control, autonomous executive software, helicopter dynamics and vehicle health management.

The ARP team hired a project manager who was responsible for:

- developing schedules, budget and project progression reports;
- communicating with stakeholders and upper management at NASA for approval on all tasks;
- overseeing hardware and software development;
- crafting risk analysis documents; and
- producing data and evaluations.

The two prototype autonomous rotorcrafts used for this project, named *Ariel* and *Caliban*, were modified Yamaha RMAX radio-controlled helicopters with additional planning software and flight control components.

NASA tasked the ARP team with developing, demonstrating and evaluating automated reasoning technologies for rotorcraft. This would fulfill NASA's mission to extend its technology expertise in this field. Specifically, the team would create a flying laboratory consisting of advanced flight controls, a reactive planner, all-digital camera system with tracking and passive ranging capabilities and real-time health management systems.

By completing the above tasks, the ARP team hoped to develop a rotorcraft that could:

- maneuver around obstacles without human supervision,
- accomplish top-level mission goals,
- conduct vehicle health management activities (i.e. diagnose and fix problems on the rotorcraft automatically), and
- re-plan the mission should unforeseen circumstances occur.

Challenges

Coordinating the ARP project team was one of the initial challenges as it was comprised of people from various organizations with different experience, backgrounds and working styles.

The project manager also had to report to two supervisors - NASA and the Computing, Information and Communications Technology Program (CICT) - which sometimes had different priorities for the project or ways they wanted information relayed to the team.

Solutions

To keep team members informed and ensure stakeholder expectations were met, the ARP manager used project management to define the project scope. The team then presented this project scope to stakeholders, who then discussed and negotiated all points with team members.

Team members could then incorporate the changes and agree on responsibilities. This allowed them to carry out their tasks in a more efficient manner with a clearer picture of the end result.

The combined team used project management techniques to establish motivational tools and near-term focus deadlines to ensure success. The main technique was to schedule regular demonstrations of the teams' accomplishments, ensuring a specific amount of the work was completed before it was presented.

Following these presentations, the ARP manager could determine and provide the additional resources and supplemental information the team needed, and follow up to review the team's progress and the challenges it faced in reaching its end goal.

The team planned and maintained communication throughout the project using project management techniques. The ARP project manager housed both his team and the hanger team together for easier communication; he could also receive instant updates of project status.

An ARP Project Web site was created to keep NASA Computer, Information and Communications Technology Program upper management and stakeholders aware of the project's progression. The team also provided project updates to potential customers of the finished rotorcraft, including the Department of Homeland Security, the National Technology Transfer Centre and other NASA researchers. This offered the dual benefits of marketing the rotorcraft and maintaining team morale by cultivating project support. In addition, all material presented in the updates was accessible to the team via the Web site, including flight plans, authorized documents, scheduling, photographs and videos.

The Safety of Flight Review Board was also active in the project by making periodic approval checks throughout the process. Having these approvals completed throughout the project meant there would be no significant delays. Flight plans were also tested and reviewed by peers to ensure the results were meeting NASA's goals. The ARP manager was able to select these reviewers from a pool of highly qualified NASA researchers.

In order to combat risk, the project manager found potential weaknesses in plans and prepared responses to any major delays or crises. All of these risk management strategies were shared with the team in weekly meetings, and therefore, the entire team knew how to respond to any incident that could occur.

Results

The project manager learnt early to meet the needs of each team member and communicate individual responsibilities; ensuring deadlines were established and met. The manager also sought each team members' opinion to find the best possible solution; team members felt they were truly a part of the team.

In addition, when the project manager learnt the time spent scheduling flight tests was more than he expected, he allotted more time and energy into scheduling to ensure it would not cause future delays.

The ARP team was able to assist the CICT Program in meeting its goal of developing and testing the fundamental technologies of automated reasoning. The ARP project also helped serve as a stepping stone to the 2005 fiscal year and future NASA projects. Without the extremely disciplined project manager on the ARP team, the project would not have given NASA the knowledge they sought in the autonomous field.

Key Achievements

- The ARP satisfied all of NASA's success factors, including meeting or exceeding client needs, and meeting or improving on budget.
- The ARP met all scheduling goals, completing each phase with no scheduling delays.
- NASA expressed a high level of satisfaction with the finished project and supported the ARP team's nomination for PMI's 2005 Project of the Year.

Source: Project Management Institute Case Study
NASA Autonomous Rotorcraft Project (PMI, 2005)