

2006

A model for successful teamwork

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A MODEL FOR SUCCESSFUL TEAMWORK

by

Mohamed Bakir

**This thesis is presented in fulfilment of the requirements for the degree of Bachelor
of Communications (Hons).**

**Faculty of Communications & Creative Industries
School of Communications & Multimedia
Edith Cowan University**

March 2006

USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

ABSTRACT

Increasingly, there have been greater expectations from industry and employers that universities in Australia focus on developing student generic skills, core competencies or graduate attributes. As a result, key skills included in the mission statements of most universities tend to include higher-level aims relating to critical thinking, lifelong learning and teamwork. These generic skills and others, are considered essential for successful work place practice and universities are constantly being called upon to produce graduates that can show these skills. This is not an easy task, and universities are trying different approaches to try and satisfy these needs, e.g. e-portfolios and tracking key skills throughout the course of study.

This study has focused on developing teamwork skills, and conducted a wide literature review to develop a model of team evolution for successful teamwork. A four-stage model was developed from the literature, which examined team development stages such as: pre-grouping issues (beyond students' control); team establishment issues; team operation issues (rules and standards); and ongoing operational issues for the duration of the project. The model was synthesised from the literature with a view to develop processes and rules that teams could undertake in order to be successful.

Based on this literature review, a survey was developed and a pilot study was carried out with nine teams in the field of Multimedia and IT development to confirm the findings from the literature and the established team life cycle model. With the acknowledgement that only a small sample was used for this study and no robust statistical inference could be drawn, the results revealed that the established model was reasonably accurate in determining successful teams i.e. teams that demonstrated reasonable knowledge and abilities in teaming skills, developed team rules and processes, and focused on promoting collaboration and interpersonal relationships. The study was undertaken within the context of Multimedia/IT development in a higher education environment.

It is hoped that the results of this study can not only benefit Multimedia/IT students when preparing for team-based assignments, but also students from other disciplines. In this way, this study may help provide one of the essential graduate attributes being called on by industry and employers.

DECLARATION

I certify that this thesis does not, to the best of my knowledge and belief:

- (i) incorporate without acknowledgment any material previously submitted for a degree or diploma in any institution of higher education.
- (ii) contain any material previously published or written by another person except where due reference is made in the text; or
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ACKNOWLEDGEMENTS

Thank you God for giving me the ability and health to complete this study.

I would like to express my gratitude and thanks to my supervisor Dr Joseph Luca who was very patient with me and gave me inspiration through his wisdom and expertise. Thanks Joe for putting up with me and for all the knowledge I gained from you. Many thanks to the students and staff who participated in the survey and provided valuable responses.

I am grateful to my lovely wife who gave me the drive and support to achieve my goal. Also, thanks to my daughter Adla and son Jamil for their constant encouragement, and for giving me the time and space to complete my study. I cannot forget all the coffees Adla made to keep me awake during the long hours at the computer.

I acknowledge the insight and advice by Dr Lelia Green and Dr Mardi O'Sullivan, which helped me focus and pointed me in the right direction.

I acknowledge Dr Arshad Omari for his guidance and support which made my goals possible, enjoyable and achievable throughout this course. Also, great respect to Prof Ron Oliver, as well as all my lecturers and tutors in the School of Communications, Mt. Lawley, for their assistance and constructive advice.

Most of all, thanks to Mum Adla and Dad Jamil Bakir for their invaluable impact on my life.

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CHAPTER 1

INTRODUCTION

In this chapter an overview of the thesis is given. As the focus of this thesis is on teamwork the study attempts to start with a background on teams and attributes of successful and unsuccessful teamwork. The background is followed by a discussion of the significance of the study, which leads to the aims of the research. A layout of the subsequent chapters is also presented at the end of this chapter.

1.1 Background

A team is made up of individuals working together on a common task with complementary skills, i.e. - “a group collaborating in their professional work or in some enterprise or assignment” (Bluck, 1996, p. 68). According to Katzenbach (1993, p. 4) “a team is a small group of people with complementary skills who are committed to a common purpose for which they hold themselves mutually accountable”. Similarly Adair (1986) believes a team is essentially a group working together with a common aim and with complementary skills. So, a team can be considered to be a committed group or peers working together to achieve a common goal, all of which have complementary, professional and technical skills. Does this then guarantee successful teamwork?

Teamwork is defined as “a group of people who are mutually dependent on one another to achieve a common goal” (Biech, 2001, p. 1). It involves commitment, collaboration, clear purpose and goals. The team members’ commitment, accountability and skills are some of the attributes needed in team members in order to achieve their common goals. Therefore, successful teamwork requires team members to mutually agree on standards of behaviour, project planning, and distribution of roles and managing tasks such as scheduling and decision-making. Deciding on these issues will help avoid any misunderstanding during the team life cycle (Parrish, 2001).

Johnson and Johnson describe successful teams as having “a set of interpersonal relationships structured to achieve established goals” (1998, p. 6). The benefits of

interpersonal relationships encourage bonding and cohesiveness amongst team members. This can result in a positive emotional climate where team members care about each other on a personal as well as professional level resulting in increased productivity, responsibility, motivation, persistence with tasks and commitment to achieve team goals. Therefore to increase chances of team success it is important to identify effective and efficient teamwork and to determine the key reasons that could hinder teams from working together as a group.

The reasons for team failure are lack of knowledge, skills, ability to share ideas and seeing the big picture (Hays, 2004). There is a lack of essential teaming skills and often team members do not know where they fit in the team. Team members encounter difficulties completing the tasks on hand and prefer to work as individuals rather than working as a team. McGourty and De Meuse (2001) outline the following aspects of dysfunctional teams and are of the opinion that team members:

- Have little or no commitment at all to the team's overall purpose or mission;
- Have many arguments, are time wasters so that very little is achieved and there is plenty of confusion over their roles and expectations;
- Behave as a group of individuals rather than as a team;
- Fail to offer challenging ideas or follow the way things were previously done and do not consider themselves responsible for their agreed-upon actions; and
- Lack clear goals, good leadership and direction, clear milestones, real project plans, and project management skills.

Kipp and Kipp (2000) also identify similar issues related to dysfunctional teams such as:

- Poor conflict handling in the team or not being able to manage conflicts at all;
- Wasting time in arguments and unable to follow team rules;
- Constantly putting each other down through disagreement in ideas;
- Lack of collaboration in working together towards the team goals, instead, each member tries to get his or her own ideas across without listening to other team members; and
- Lack of any effort to keep the peace in the team and refusing to learn from their collective experience.

These authors highlight that unsuccessful teams display similar dysfunctional team characteristics. These include team members lacking knowledge and/or skills; not

collaborating in tasks, roles and responsibilities; lacking team commitment; wasting time in arguments; poor conflict handling, lacking management skills, poor leadership and working as a group of individuals rather than together towards the team purpose and goals.

In today's society it is important to promote functional teams. The purpose of students working in teams is that they can achieve better outcomes from the combined efforts of a team working well together, rather than working as individuals. In the Multimedia/IT development environments in higher education team based learning is widely used (Create, 2001). Most Multimedia projects tend to be undertaken by teams being drawn from a variety of disciplines and can be made up of a combination of artists, illustrators, animators, designers, writers and composers (Create, 2001). A functional team would see team members working together to utilize these skills, knowledge and promote the development of new challenging ideas to the team.

The input from each team member can result in new ideas, through the decision making process that will lead to a higher quality output and the reduced likelihood of steps being missed (Biech, 2001). Teamwork can increase the use of skills, encouragement, and rewarding work. It provides social communication within the group and excitement of successful joint work. Team members gain confidence, identification and good reputation of being in a successful team or project (Welbourn, 2001). Biech (2001) identifies characteristics such as clear goals, communication skills, strong leadership, problem solving skills and proper time management as being some of the essential attributes for team success. However, teams inexperienced with team problem solving and managing their tasks on hand could lead to team failure. Their inexperience with team conflict handling can also cause them stress, time wasting, drop in learning and reduce their full potential of learned skills.

1.2 Significance Of Study

Teamwork is increasingly being used to promote learning with students in post secondary classrooms and study areas such as management, business, health, information technology, communication and media studies (Create, 2001). In the 21st century where technology dominates most of the work force, teamwork has become an essential part of the learning outcomes in classrooms where students develop skills needed for successful teamwork to enter the present employment requirements.

Many teams can be dysfunctional and fail to work. Wysocki (2002) reports on a survey of IT executives to identify the reasons for the high rate of IT project failure. The surveyors divided their three hundred and sixty five respondents into three groups of large, medium and small companies. The results showed only nine percent, sixteen percent and twenty percent of all IT projects were successful in these three groups. Based on this survey Wysocki believes the major causes of project failure are related to inadequate communication, improper team construction and inefficient project management processes.

New teams are established every day to accomplish essential and common objectives. However, teams often struggle to utilize effective processes to measure their team objectives. This could be due to the process complexity or the time involved in taking such measures. Teams are required to perform brainstorming to help measure all aspects related to their objectives and team performances (Romig, 1996, p. 79). Therefore it is important to provide new teams with relevant and feasible methods throughout the development stages that help measure their objectives.

The need for multi-skilled personnel such as animators, designers, illustrators, programmers and writers, with creative flair as well as technological knowledge has increased with the rapid growth of technology, yet there is still demand for specialist skills in this industry (Harris, 2003; Create, 2001). Therefore, a learning curriculum has been developed by the Australian National Training Authority to be implemented across Australia to meet the needs of the growing technology and the multimedia industry. A key factor in the growth of the multimedia industry is the rapid development of applications, which has seen a drop in costs resulting in more widespread use of the technology.

The Australian National Training Authority outline seven key competencies in their curriculum that need to be met to ensure people are prepared for effective teamwork in the Australian work force, which include:

1. The ability to collect and evaluate information by finding, sorting and analysing the information and its source;
2. The capacity to communicate effectively with others using verbal and non-verbal communication skills;

3. The ability to plan and organise activities according to one's skills and roles, monitoring one another's performance to identify areas of weakness and making good use of time and resources;
4. The ability to interact with one another effectively as a member of a team to achieve the team's common goal;
5. The ability to apply problem-solving skills with creative thinking and a creative approach to maintain harmony within the team;
6. The capacity to use approximation and estimation strategies for practical purposes; and
7. The ability to apply technology through the use of learned skills and the capacity of learning new technologies (Create, 2001).

The demand for competent team members has increased in the work force because better results can be achieved through effective teamwork. Through placing individuals in a team just like that will not achieve the expected outcomes or ensure high performance from the team (Beatty & Barker-Scott, 2004; Harris, 2003).

Applying team development processes strengthen team members' performances and create a climate for new ideas through working collectively to achieve a common goal, "designing a team rests on a limited number of principles and concepts and involves various methods and techniques" (Belbin, 2000, p. 136). Generally the attributes in effective teams are where team members devote most of their time to the team purpose, they establish group goals, provide positive feed back, they encourage and reward one another for their hard work, they plan proper communication methods, and are determined to get the job done (Johns, 1995).

The rapid growth of the multimedia development industry calls attention to the need for keeping up to date with training and skill development, as commitment, determination and the ability to work as part of a team are essential attributes required at all levels of employment (Create, 2001). These changes indicate a growing employment rate and the need for ongoing training along with the need for being properly trained to be able to cope and work successfully in teams.

It is very difficult to predict the outcome of a team's performance. However, by understanding and recognizing the essential attributes needed for team success we can attempt to increase the success rate of team performance. Attributes such as abilities, skills, rules, collaboration, clear objectives and management processes would need to go

parallel with the team life cycle in order to increase the likelihood of team success. Identifying the relationship between the essential attributes of the team members and the phases of the team development cycle could result in positive outcomes such as improved project handling and quality, minimal time wasted in problem solving, constructive sharing of ideas between members and meeting project deadlines through the network of collective skills.

This study aims to provide guidance to the team selection process in the context of Multimedia/IT development in higher education where students could use this study as a reference guide for team-based assignments by highlighting attributes needed in each stage of the team development cycle to enable team success, furthermore they could use the research rules rather than their generic rules.

1.3 Research Aims

Many researchers have recommended assessment tools and methods to help build successful teams, yet there are many reasons for team failure. Belbin (1997, p. 88) believes “it would be a big step forward if it could be known in advance whether a person was right for a particular work assignment or not”. Empirical studies by Biech (2001), Belbin (1981), Bluck (1996), Parrish (2001), Welbourn (2001), Romig (1996), Johns (1995), Tuckman (1965), Adair (1986), Hays (2004), McGourty and De Meuse (2001), Johnson and Johnson (1998), Kipp and Kipp (2000) reinforce the importance of carefully considering essential team attributes and strategies needed to provide a healthy setting for effective teamwork.

This study explores key attributes required for multimedia/IT development teams in higher education to enhance performance. These attributes can include skills such as communication, problem solving, decision-making, conflict management, appropriate use of power, as well as team size, roles, rules, training, support and resources.

However, when considering required successful team attributes it is important to firstly consider the team development stages because there are essential team attributes that need to be identified in each phase of the team life cycle. Research carried out by Tuckman (1965), Beatty and Barker-Scott (2004), Belbin (2000), Hays (2004) and Wysocki (2002) highlights the importance of investigating the team development stages.

This research study aimed to:

1. Establish a team life cycle that represents the evolution of a team;
2. Identify key skills and team processes required in each stage of the team life cycle to enable success;
3. Based on this information a survey instrument was developed to help identify these key attributes with a group of higher education Multimedia and IT students; and
4. Determine if the components of the team life cycle model (Figure 2.1) are indicators of team success.

1.4 Thesis Overview

This thesis takes the following structure:

Chapter Two reviews literature on the four stages of team life cycle and the key attributes needed for successful teams and team effectiveness.

Chapter Three covers the methodology used to confirm the findings from the review of the literature. It explains the process of developing and implementing a survey.

Chapter Four analyses the survey involving existing multimedia/IT development students. It investigates what the students believe are essential attributes for a successful team and compares the results of the survey with the literature reviewed in Chapter Two.

Chapter Five covers the outcomes of the study, as well as summaries, implications for future research and finish with a conclusion.

CHAPTER 2

REVIEW OF LITERATURE

In this chapter, a review of the literature will be performed to develop a conceptual model aimed at identifying key attributes needed for successful teamwork. Using the team life cycle model (Figure 2.1), a series of guidelines and procedures will be synthesized from the literature, with a view of promoting successful teamwork. These will be summarized into a series of tables (2.2, 2.4, 2.5, 2.6, 2.7). The sections covered in this chapter will include:

- Team development stages;
- Team life cycle model; and
- Summary.

2.1 Team Development Stages

The process of team development can be described as “the way groups first come into existence, then develop, mature and eventually die” (Tyson, 1996, p. 5). The life cycle of a team is similar to the human life cycle; it has a beginning, middle and end (Tyson, 1996). Sooner or later team members develop and cultivate with the increase of knowledge, tasks and active participation, Moreover they can become faster and efficient in completing their projects (Gordon, 2002). This section explores the empirical studies carried out on team development and subsequently attempts to identify appropriate development phases that influence students’ team based learning in higher education.

Fisher (1999) believes a team life cycle is comprised of four phases.

1. Orientation
2. Conflict
3. Emergence
4. Reinforcement

Biech (2001) also suggests four phases in a team life cycle and includes ten effective team characteristics that need to be distributed into the four stages. To begin with, the

composition of the team foundation is where they strongly identify at an early stage of the team building process – clear goals, define roles, open and clear communication and effective decision making. Second most important at the early formation of a successful team require balanced participation, valued diversity and managed conflict. Third is to engage, have a positive atmosphere and cooperative relationship, which makes working in a team personally satisfying and rewarding. After everything else comes participative leadership where leaders share the responsibilities and glory. Good leaders are also supportive, open, fair, create a climate of trust and are good coaches.

According to Wysocki (2002) there are four stages used in the development of effective teams.

1. *Assessment.* Evaluation of team background. At this stage information is collected from individuals about thinking styles, learning styles, conflict management processes, and assessment of skill and technical abilities.
2. *Formation.* Team formation process. In this stage team members are selected. This process can involve various methods of team selection that have been discussed in the Presage or pre-grouping section. Mainly, the focus in this stage is on team size which may depend on resources, type of project and roles required by the project.
3. *Development.* Distribution of skills, competencies and roles. This stage involves the allocation and distribution of specific tasks based on skills and preferences. An assessment of strengths and weaknesses of the team members as per project needs will be necessary in a team that has been pre-selected by the facilitator.
4. *Deployment.* Implementing distributed tasks across the life cycle of the project. In this stage the project manager determines and allocates specific assignments to team members while taking care that team weaknesses are not exposed.

The most popular and widely used team life cycle model was developed by Tuckman (1965; 2001, p. 66) who described four team development stages as “(1) orientation/testing/dependence, to (2) conflict, to (3) group cohesion, to (4) functional role-relatedness” and coined them as follows:

1. *Forming.* The orientation phase is where team members test themselves and each other in relation to roles, skills and knowledge. This testing allows them to identify how they will behave with each other throughout the life cycle of

the project as well as how tasks will be accomplished. Team members identify and set their goals, make up their project plan, identify leadership dependencies and set their rules for the decision making process;

2. *Storming*. The conflict phase is when differences in values, styles, and characteristics start to arise. Task and role demands can cause disagreements among team members;
3. *Norming*. The group cohesion phase is when team members start to accept each other and realize common goals. Members are able to openly express their opinions, personal relationships are formed, new roles and standards come into existence and teams become task focused; and
4. *Performing*. The functional role-relatedness phase is the final stage where roles become flexible and manageable, differences have been resolved, support structure to enhance task performance is being followed and group focus is on completion of project tasks.

According to Harris (2003) the forming and storming stages developed by Tuckman are very confusing stages as they barely improve team performance. The norming stage occurs when team members are beginning to realize common goals, objectives, roles, and procedures as well as show improvement in team performance. The final performing phase is when the team begins to enter high achievement. Harris suggests a better solution that can enable and improve team performance that needs to be considered prior to Tuckman's norming stage. Harris believes that by focusing solely on team life cycle will not result in effective teams. Therefore he devised a step-by-step real-world programme of activities aimed to improve team members' performance at the early stages of the team development process, so as to gain maximum benefit of the norming stage and achieve a very high level of performance in the final phase. He then developed an action plan, which consists of six key strategies to ensure the effectiveness and success of the team-building programme. The programme exercises are provided at the end of his book titled 'Building Innovative Teams' and should be carried out by the organization management. In addition, the action plan instructions are provided to make the most of the team-building programme. The six key strategies for the action plan are:

1. Set up the management infrastructure;
2. Set up team building activity action plan;
3. Set up key strategies to accelerate team performance;
4. Monitor performance development;

5. Benchmark team performance at the beginning; and
6. Design and set up the team laboratory.

Harris (2003) developed a set of four basic application principles to execute the above team building program exercises in in-class learning and real work learning to achieve a smooth operation through out the team development stages. Templates for the exercises are designed to follow specific processes and thus outline useful information for each phase of the team life cycle. The team life cycle building programme developed by Harris consists of the following phases:

1. Initial team assembly;
2. Preparation for the project;
3. Conducting the project; and
4. Monitoring and evaluation for the end results.

Gordon (2002) believes that team development is a five-stage process and that each stage deals with task activities and interpersonal group interactions to achieve the team goals. The process is outlined below:

1. *Orientation* to task. The team members determine tasks and the information required to complete the tasks. They try out various roles and discuss acceptable behaviours in relation to tasks;
2. *Redefinition* of suitable behaviour. In this stage tasks, abilities and preferences of team members are redefined based on the information gathered in the first stage. Team member conflicts arise at this stage due to differences in personal priorities or amount of devotion to specific tasks since members are not experienced in conflict handling;
3. *Coordination* of group behaviours. Open discussion and group cohesion occurs at this stage where team members resolve their differences. This stage however is the longest phase due to the time required to collect and interpret information, resolve differences and develop alternative strategies to help maintain focus on tasks and goal;
4. *Formalization* of functional group behaviour. This stage is similar to Tuckman's (1965) forming stage where the team is able to focus on completing the project and work on resolving issues that arose in previous stages such as different opinions, emotional responses and varied interpretations to tasks. By this time experience in problem solving helps develop functional roles in line with members' abilities, technical skills and group tasks; and

5. *Termination* of the group. The final phase where the group has completed the project sees the team members either continuing together in future assignments or dissolving. This stage is similar to Tuckman's (2001) adjourning stage, which he added to his team life cycle model in 1997 in conjunction with Jensen. This phase could be a period of sadness for some members who have worked well together and now have to part, while for others it may be a time of restarting from Phase 1 in another project with the addition of experience in team handling issues.

Teams go through a variety of procedures in each phase of the team life cycle involving set actions needed by team members such as task performance and group collaboration to complete the task (Parrish, 2001). This suggests that teams can progress from one stage to the next based on completion of tasks and procedures in each stage.

2.1.1 Synthesis - Team Development Stages

Proper team construction serves as the foundation for successful teamwork. A review of the literature on team development suggests there are four main stages in the life cycle of a team as shown in Table 2.1. The literature likens the team development stages to a human life cycle in that it has a beginning, middle and an end. Most of the team development models that were researched seem to build on Tuckman's (1965) basic team life cycle model. However, the research also suggests that these models assume that organizations or individuals have all the tools needed for teaming purposes.

Table 2.1 - *Team Development Stages*

Team Life Cycle	Tuckman (1965)	Fisher (1999)	Wysocki (2002)	Harris (2003)	Biech (2001)	Gordon (2002)
Phase 1	Forming	Orientation	Assessment	Initial team assembly	Team foundation	Orientation
Phase 2	Storming	Conflict	Formation	Project preparation	Balanced participation	Redefinition
Phase 3	Norming	Emergence	Development stage	Conducting the project	Engage	Coordination
Phase 4	Performing	Reinforcement	Deployment stage	Monitor/evaluation for end results	Participative leadership	Formalization
Phase 5	Adjourning (1977)					Termination

Wysocki's (2002) model includes an interesting and important aspect and that is a team assessment stage prior to the team formation stage. Harris (2003) believes that relying on proper team construction alone is not enough to ensure team efficacy. Biech (2001) suggests effective team characteristics need to be distributed into the four stages of the team development process for a teamwork success. What is needed here for students in

higher education is the presage or pre-grouping stage to identify how students' teaming procedures can affect their team success.

Finally based on the study to establish the appropriate team development phases that can apply to students in Multimedia/IT development in higher education, research has identified the most effective stages that can contain a distribution of attributes needed to ensure team success. The team development cycle can be made up of four phases such as presage or pre-grouping, team establishment or formation, team operation rules or setup and ongoing team conduct. The following section discusses the four phases of the team development process.

2.2 Team Life Cycle Model

Proper team construction is critical for successful teamwork. Team members need to address team development phases clearly and carefully, moreover they need to determine and agree on procedures for each phase to achieve teams objectives. Teams that are poorly constructed are likely to face problems and put the success of a team at risk (Beatty & Barker-Scott, 2004).

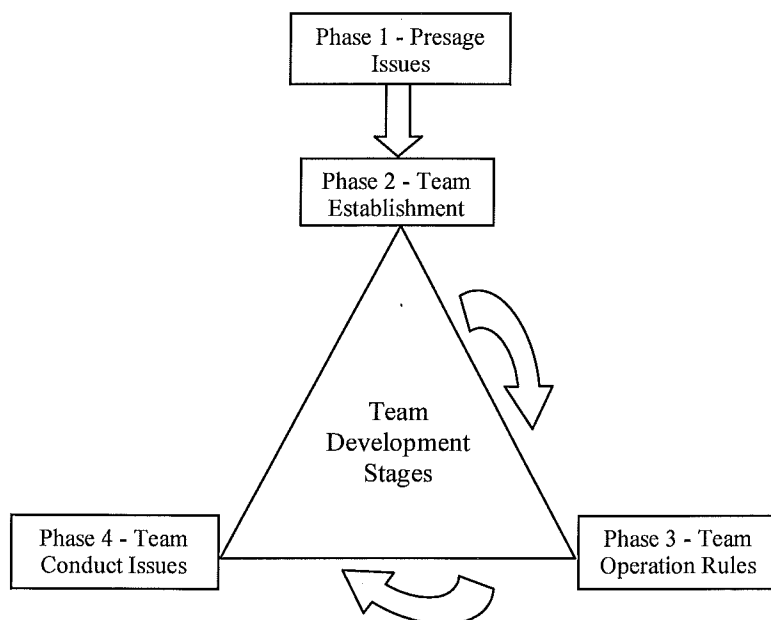


Figure 2.1. Team life cycle.

Based on the review from the previous section (Table 2.1), a team life cycle model was developed to reflect the necessary stages needed for successful teamwork. For that reason it is necessary in a pre-grouping or presage phase (Figure 2.1), to investigate factors that can influence team construction but are beyond the students' control. These factors can include the various methods of assigning students to teams, students'

knowledge and experience, culture, resources, training and support. In the second phase when the team is established, issues that can be considered may include team size, a set of activities directed at project purpose, task objectives, skills and roles as well as knowledge, abilities, experience and commitment. The third phase can include team operation rules such as procedures, task planning, problem solving and decision-making. The fourth phase can include task performance issues such as team members' relationships, problem solving, communication and conflict handling.

2.2.1 Phase 1 - Presage Or Pre-Grouping

The presage or pre-grouping phase (Figure 2.2), considers the student's background and addresses issues that can influence team success (Wysocki, 2002). The focus in this section is on issues before teams are formed and beyond student's control such as knowledge, training, support, resources and assigning individuals to teams (Figure 2.3). It also identifies abilities needed in teams to enable team collaboration and issues beyond the

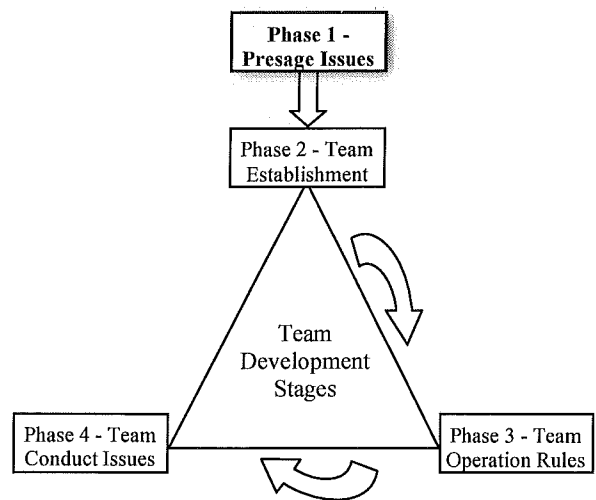


Figure 2.2. Presage phase.

control of the student when being assigned into teams that can influence team success. These were identified by many of the authors in the following review.

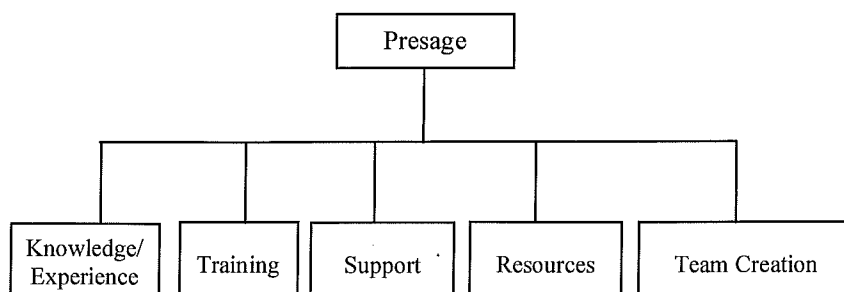


Figure 2.3. Conceptual framework of presage or pre-grouping phase.

At the end of this section (2.2.1) a summary is shown for the 'Presage Phase' (Table 2.2), summarizing all the key issues discussed in this section.

2.2.1.1 Previous Knowledge/Experience

Previous knowledge and experience of teamwork helps students adapt more easily into an effective team scenario. Johnson and Johnson (1999) believe that experience can help teams develop into effective groups. Previous knowledge and experience of teaming building methods and teamwork can be important for students as it can empower them to become more productive, responsible and strengthen their relationship

to grow into effective teams members. Stewart, Manz and Sims assert, “team members cannot provide task and social inputs unless they have the necessary knowledge, skill, and ability” (1999, p. 39). Prior knowledge in effective teaming processes as well as problem solving and conflict handling can assist students in sharing and exchanging ideas and knowledge, thus increasing team effectiveness. Having a team with much previous knowledge and experience can be advantageous and strongly support the development of a successful team. Identifying these experienced team members can be advantageous, if the tutor can distribute this expertise amongst all the teams.

2.2.1.2 Training

Does the teaching and learning environment offer training for teamwork skills such as communication, problem solving, time management etc. Or, have students received formal teamwork training before joining the team? Previous training can affect the success of the team.

Often students are required to carry out multi task or complex team-based projects to meet academic and social skills objectives. Stewart, Manz and Sims suggest, “members’ capability to provide desirable inputs can be obtained either through effective team member selection or through training and development” (1999, p. 39). Additionally, Romig (1996) points to empirical study conducted on teams’ performances. The study showed a significant improvement in teams who received training in team structure methodology rather than teams without specific training. Moreover, teams needed to have training in communication skills to help them assist each other with their tasks. Therefore, it appears that training in teamwork skills can assist students in generating new ideas, goal setting and solutions to problem solving in order to be able to identify project needs and contribute towards team success.

2.2.1.3 Support

Smith (1996) recommends teacher support in all phases of the team life cycle to improve team performance and produce better learning outcomes by providing guidance in positive interdependence, face-to-face interaction, accountability and responsibility, professional skills and group processing to increase team collaboration. Similarly, Beatty and Barker-Scott (2004) believe that teams who do not have strong support may falter and break up as it is not often that teams are able to create the “necessary structure, systems and relationships to succeed without the support and help” of their

management throughout the team life cycle. Therefore it is apparent that team success depends on strong support from facilitators and good leadership skills.

In formal cooperative learning there is a difference between spontaneous or unstructured groups and carefully structured learning groups, to be able to work well together. Carefully structured cooperative learning is where lecturers engage directly with students to enhance learning in five important elements such as: positive interdependence where the students feel their success is linked to each other; use of face-to-face interaction to promote and encourage each other and solve their problems; hold themselves accountable and responsible for their tasks and roles; make use of their professional skills such as leadership, decision-making, team communication and conflict management to ensure team success; and group processing that helps team members collaborate effectively and increase their team performance (Smith, 1996).

2.2.1.4 Resources

“The types of tasks students are required to complete determine what materials are needed” (Johnson & Johnson, 1999, p. 27). Material and resources such as computers, and softwares are important to teams success, the educator needs to identify and arrange necessary materials and resources to be distributed among team members as it will strengthen their performance and help in completion of tasks.

Teams constantly require additional external support through monitoring and managing of team affairs and providing the resources needed so that a high level of performance is maintained (Telleria, MacBryde & Bititci, 2001). Monitoring the performance of a team and the resources available to them are critical issues that need to be considered at every stage of the team life cycle.

2.2.1.5 Team Creation

In most educational environments students usually choose whom to work with. This selection method is not based on any specific criteria but often based on friendship, previous teaming history or teacher intervention. They are not aware of proper team building and attributes required for team effectiveness. This can risk the outcome of a project as well as contribute to conflicts between team members themselves (Harris, 2003). Johns states that when assigning individuals to teams management or facilitators may not assess or have the ability to assess team characteristics (1995). Improper team

construction can result in team member clashes, conflicts in roles and expertise as well as ideas and opinions, which can jeopardize the quality and/or success of a project.

Harris (2003) suggests three main issues that need to be considered when assigning individuals to groups in the team building process. These include firstly, the types of competencies such as skills, knowledge, experience and aptitudes; secondly, the types of characteristics within the team and how members go about problem solving, decision making and interacting; and finally, the actual selection process of individuals for a team.

In some areas of study where students study the same learning material they share similar skills. Students are required to work together in a team-based assignment in order to develop or complete projects. According to Johnson and Johnson "what determines a group's productivity is not who its members are, but rather how well the members work together" (1999, p. 21). They usually come from different backgrounds, abilities, experiences and interests. Often students are given the freedom to select their own team members in order to form a team, yet they may end up selecting members who are similar to their background or due to being friends (Johnson & Johnson, 1999).

Assigning students to teams can be a deciding factor for team success. This study examined different factors and processes involved when assigning students into teams, some of which have been identified by Johnson and Johnson (1999) as teacher-selection, random selection, stratified random selection and self-selection methods. This section will now discuss these methods involved in assigning individuals to teams as well as cultural issues and team selection instruments.

Random Selection

The random assignment process depends on class size where the teacher provides students with numbers from one to ten followed by dividing the class to three or four large groups. Having done that, students who end up have matching numbers from the three large groups are to join together and become a team (e.g. 1+1+1= team one). This random process is the most effective and a quick technique to assign students into teams, however, it does not take into account the personal interest, characteristics, skills and abilities of students (Johnson & Johnson, 1999). It is important to focus on both skills and social categories to reduce the risk of social problems and improve team performance.

Stratified Random Selection

This process is similar to the random assignment except that the facilitator categorises students according to either achievement level, past marks, learning style, personal interest or task orientation. This can be achieved by pre-testing the students or even with the facilitator's prior monitoring of those students. The next step is to ensure that each team will include one of each of those characteristics so that all teams have a mix of different abilities and levels. However, selecting team members based on characteristics can be a risky process because it can be understood in several meanings where students feel prejudiced. "By emphasizing the personal abilities and talents of students rather than their social categories, you focus students on the person, not the social group" (Johnson & Johnson, 1999, p. 22). Assigning students into teams made up of unique categories based on talents and skills such as creative thinker, summarizer, timekeeper, resource investigator and content expert will reduce the risk of social problems arising within the team and increase the effectiveness of the team by focusing on the skills needed for completing the project (Johnson & Johnson, 1999).

Teacher Selection

This process is designed to create support groups for isolated students. In this category the teacher selects which student is going to work in which team. The teacher asks students to list three classmates they would like in their team. Once the lists are completed, the teacher identifies students who are chosen the least times or the isolated student who is not selected by any of his classmates. Then he adds the isolated students to teams with the most social, supportive or popular students. This process ensures students with disruptive behaviour or non-achieving students are a minority in each group.

The benefit of this process is that the isolated student will learn from the team and build positive relationships within the team (Johnson & Johnson, 1999). However, Beatty and Barker-Scott argue this method and state that the isolated student is usually one who does not like working in teams or following the team's rules and processes. The loner or isolated student is a negative person who may not contribute to the team productively and thus slow the overall team performance. Nevertheless, Beatty and Barker-Scott (2004) confirm through their research on teams that there are not too many loners out there. Smith (1996) also states that isolated or silent students are those individuals who do not contribute to the learning of the team or themselves. Students in a team need to

share past and present learning, help, encourage and support each other's efforts to learn. The teacher needs to ensure that students are interacting effectively and contributing to each other's learning and the overall success of the team.

Furthermore students in formal cooperative learning environments such as Multimedia or IT development courses in higher education are recommended to continue working together as a team for the duration of the project in order to be successful. Teams that are having trouble functioning effectively would not benefit from being split up because they will not have enough time or the opportunity to gain the experience they need to solve their problems through collaborating with each other (Johnson & Johnson, 1999).

Self Selection

The self-selected group process is where students choose their own team members. This process is the least favourable because either self-selected teams end up with high achieving students being together, males working with other males, white students with other white students or minority students working with other minority students. This results in more problems than when the teacher selects the teams because the focus shifts from task needs to student needs. What is important in team making is the variety of skills needed to complete the task and not the social relationships. So, a better process would be for students to make a list of the students they would like to work with, and have complementary skills. Then the teacher would exchange one or two students from the preferred list with students of his choice (Johnson & Johnson, 1999).

Cultural Selection

Beatty and Barker-Scott affirm that selecting team members according to social categories such as age, gender, personality or ethnicity will not have any significant effect on the success of the team. Team development based on skills is seen to be more productive as these skills will help to "harness the creative friction that naturally occurs from the diversity of any group" (2004, p. 37).

Team members who have similar background and nature do not necessarily make a productive team. The team productivity depends on how well they work together as a group. There are many advantages for heterogeneous team members, because members generate new ideas, views and different problem solving techniques. The wide range in team abilities can encourage constructive feedback, better understanding, enhance

logical thinking, creativity and improve team communication where they are able to engage in more discussion and explanations (Johnson & Johnson, 1999; Gordon, 2002).

The effectiveness of a culturally diverse team depends on the nature of the group's task, the stage of development and the team leader's ability to manage diversity. A study conducted by Gordon (2002) indicated that a homogenous team did not necessarily outperform a culturally mixed team and that there were usually no differences in performance effectiveness between the two types of teams. However, Gordon believes "the protocol for building an effective multicultural team often begins with diversity training" (2002, p. 202) because a few disadvantages seen in multinational teams could be the increased complexity in understanding objectives and responsibilities, ambiguity, difficulty in group cohesion, poor communication and time wasting due to confusion.

It appears that multicultural teams are often more productive when team members are trained at an early stage in group communication, setting acceptable behaviours and attitudes, problem solving, decision making, conflict handling, accepting and managing cultural differences.

Selection Tools

The team performance profile recommended by Margerison and McCann (2001) is an assessment tool designed to collect data about individuals at an early stage of the team building processes because it can assist in:

- Providing an assessment of team member characteristics and performance at an early stage;
- Helping team development and effectiveness by enabling team members to focus on their project rather than their differences;
- Serving as a tool to measure the team members' performance to assess improvement in performance; and
- Providing recommendations to individuals in a team to identify their strengths and weaknesses.

2.2.1.6 Summary of Phase 1 - Presage

Team based projects promote the development of team knowledge in problem solving, conflict handling and ability to exchange and build on ideas. Not all teams consist of team members with previous knowledge or experience hence it seems necessary for students in Multimedia/IT development in higher education to be trained in team

development issues at an early stage to assist them in effective team building. Teams with prior knowledge of team building methods are more productive through sharing knowledge, ideas and experience. Students in teams continuously require teacher support and guidance throughout the team's development cycle to improve team performance and produce better teamwork outcomes. Once a project is determined appropriate resources and material need to be made available to the teams at an early stage of the team development process to enable teams to complete their tasks.

A number of processes for assigning students into teams have been identified such as the random, stratified random, teacher, cultural, selection tools and self-selection. According to the literature, the most common but least favourable process was the self-selection method where students choose their own team-mates. This can lead to team imbalance of skills and essential attributes, causing the focus to shift from task needs to student needs and produce a dysfunctional team. So, it appears that the self-selection method can be useful if students select their team mates based on complementary skills rather than friendships or relationships. A brief overview of the selection methods identified through the literature follows.

- *Random.* Effective but does not take into account successful attributes needed for effective teamwork.
- *Stratified.* Teachers categorise students and then distribute them into teams ensuring a mix of abilities and levels. It overlooks social categories.
- *Teacher.* Students and teacher are involved in the team selection process. It helps isolated students but requires teacher support throughout the project life cycle.
- *Multicultural.* It can generate new ideas and encourage creativity but may not necessarily make an effective team. Students need to be trained in handling cultural differences.
- *Selection tools.* Developed by researchers to assist the team selection process by categorising students into relevant teams based on skills and abilities.

Whichever team selection method is adopted it is recommended for students in Multimedia/IT development environments in higher education to stay together as a group whether they are functioning effectively or not. Splitting a team when problems occur does not benefit students, as they need to gain experience of handling conflict and problem solving. In higher education student teams often comprise of individuals from

culturally diverse backgrounds, therefore to be able to use a suitable selection method teacher intervention and guidance is important in the process.

Finally, the essential criteria identified through the literature for the presage or pre-grouping phase has been summarized in Table 2.2 below. This table represents key issues that are critical for effective team development in this phase.

Table 2.2 - Key Criteria And Attributes - Presage Or Pre-grouping Phase

Attributes	Description
Knowledge and experience	<ul style="list-style-type: none"> • Experience can help teams develop effective groups (Johnson & Johnson, 1999) • Team members cannot provide task and social inputs unless they have the necessary knowledge, skill, and ability (Stewart, Manz & Sims, 1999) • Experience in teaming skills, collaboration and professional skills for team effectiveness (Harris, 2003)
Training	<ul style="list-style-type: none"> • Training in teamwork skills such as team structure methodology, communication, collaboration, problem solving, etc (Romig, 1996) • Training in team dynamics (Stewart, Manz & Sims, 1999) • Skilled to identify project needs (Johnson & Johnson, 1999)
Support	<ul style="list-style-type: none"> • External or teacher support throughout team life cycle for teamwork processes including feedback on processes, samples, guidance, etc (Smith, 1996) • Team structure, systems and relationships to succeed require support (Beatty & Barker-Scott, 2004) • Constant external support through monitoring and managing of team affairs (Telleria, MacBryde & Bititci, 2001)
Resources	<ul style="list-style-type: none"> • Availability of material and resources such as computers and softwares important to team success (Johnson & Johnson, 1999) • Team success dependent on provision of necessary resources (Telleria, MacBryde & Bititci, 2001)
Team creation	<ul style="list-style-type: none"> • Consider competencies, characteristics and actual selection process (Harris, 2003) • Assigning students to teams can be deciding factor for team success (Johnson & Johnson, 1999)
Random selection	<ul style="list-style-type: none"> • Most effective and quick technique but lacks consideration of personal interest, characteristics, skills and abilities of students (Johnson & Johnson, 1999)
Stratified random selection	<ul style="list-style-type: none"> • Selection based on characteristics only is a risky process (Johnson & Johnson, 1999)
Teacher selection	<ul style="list-style-type: none"> • Communication and collaboration skills required; effective interaction (Johnson & Johnson, 1999) • Teacher selection method lacks consideration of social categories (Beatty & Barker-Scott, 2004)
Self selection	<ul style="list-style-type: none"> • Least favourable because selection can be based on social relationships; variety of skills required to complete the task (Johnson & Johnson, 1999)
Cultural selection	<ul style="list-style-type: none"> • Team development based on skills more productive than social category such as age, gender and ethnicity (Beatty & Barker-Scott, 2004) • Similar background and nature do not necessarily make a productive team (Johnson & Johnson, 1999) • Protocol for building an effective multicultural team begins with diversity training (Gordon, 2002)
Selection tool	<ul style="list-style-type: none"> • To assess characteristics, enable focus on project rather than differences, identify strengths and weaknesses (Margerison & McCann, 2001)

2.2.2 Phase 2 - Team Establishment

The second phase (Figure 2.4), in the team development life cycle considers the size of a team that could be dependent on a number of factors such as type of project, team goals, skills, commitment, roles and tasks.

Within the setting of higher education, Multimedia/IT development students are often in control over the size of their team, hence the team establishment phase will initially

review literature in that context. The categories outlined in Figure 2.5, were established from the literature and determine the pattern followed through the team establishment phase.

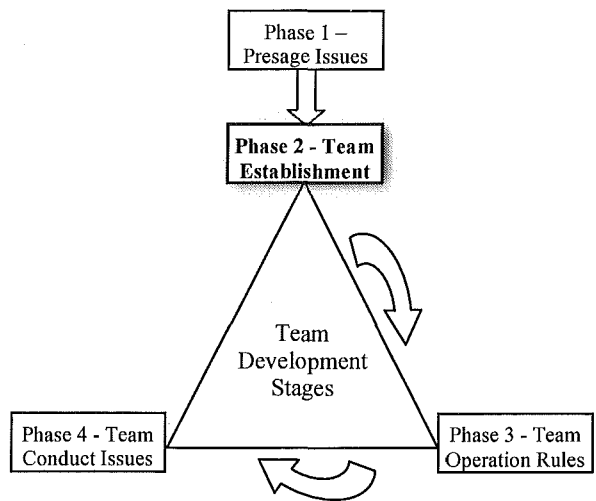


Figure 2.4. Team establishment phase.

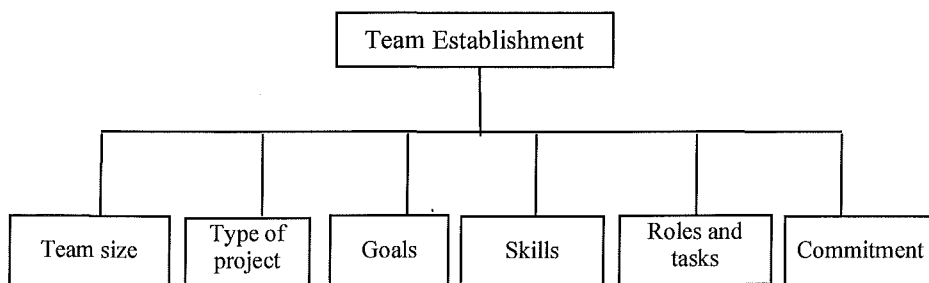


Figure 2.5. Conceptual framework of team establishment phase.

At the end of this section (2.2.2) a summary is shown for the ‘Team Establishment Phase’ (Table 2.4), summarizing all the key issues discussed in this section.

The initial makeup of a team is the transformation stage of individuals becoming team members. McGourty and De Meuse believe “as a team evolves from a collection of individuals ... into a highly effective team ... , its maturation is similar in many respects to an infant growing into an adult” (2001, p. 7). This transition from an infant into an adult is clearly identified in Tuckman’s (1965) model which suggests the ‘forming’ stage is the infant stage or the initial phase where objectives are established as well as

team members' understanding of those objectives to meet project needs. Team members clarify key values or appropriate behaviour that will be accepted by all team members, they also identify most suitable person to lead the team. Members find it hard to adjust to their new situation and they struggle to categorize the tasks they need to complete. Team members attempt to identify with each other's personality, goals and skills.

Building an effective team can be very complex and a hard task to accomplish unless there are accessible strategic steps being utilised to assess the key success factors that will help create a productive team structure. According to Hays (2004, p. 1) "teams require a structure that every member understands and that works for the organization, and which optimises team inter-reliance, autonomy and productivity".

Based on empirical studies on almost 2000 individuals in more than 250 teams, Beatty and Barker-Scott (2004) identified three key systems such as team management practice, conflict handling and problem solving that are essential to team effectiveness. Although the authors' descriptions of these strategies focus primarily on team effectiveness, the purpose of exploring the three systems is to bring attention to effective attributes those strategies may promote for team success.

The team management practice, as defined by Beatty and Barker-Scott (2004) highlights a number of issues such as team members' commitment to use maximum energy, contribute fully, feel safe to promote their ideas and views to achieve team goals. Team members identify strengths, skills, expertise, perspectives and resources needed to do their work. The practice integrates three strategies such as *task*, *social* and *commitment* (Figure 2.6), to provide the foundation for real teamwork. These strategies are discussed accordingly in relevance to their context in subsequent sections throughout the team development cycle.

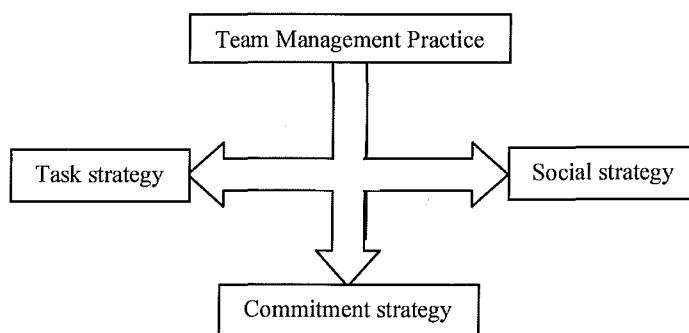


Figure 2.6. Team management practice model.

2.2.2.1 Team Size

According to Beatty and Barker-Scott (2004) a team of six or seven members at the most, is recommended for an effective team. Team members should be selected according to skill, expertise, knowledge and information of the tasks involved in the project. Similarly Harris (2003) suggests a team should have enough members who can offer a balance of skills and abilities that complement each other to develop, create and introduce new ideas to accomplish all the tasks needed to achieve team goals. Therefore, as members go through the process of team establishment it is important to identify competencies of potential team members in the areas of knowledge base, skills, tools, experience, processes and focus in relation to project requirements.

Based on empirical studies conducted by Belbin (2000) using 'EME' or Executive Management Exercise and a seminar exercise called Teamopoly, he states that a large sized team could comprise of a hundred-member team. There are some disadvantages for large size teams, firstly members may become excessively passive or when they express their opinion it can lead to irresponsible and even aggressive behaviour. Also it is almost impossible to define roles in a large team. This can lead to a decrease of meaningful contribution by team members towards the project and weaken their personality.

With medium sized teams of ten to eleven members, it is difficult to obtain all members' views and ideas across without unduly prolonging the decision making process. According to Belbin (1981) a team of eight would appear to be an ideal number as it makes use of his eight-role model demonstrated in Table 2.3. These eight roles should be clearly defined in a team to become successful, in other words, each person should be well fitted to perform in each of those eight team roles. According to Belbin a doubling up of team roles in the case there is a shortage of members could also result in a successful team, i.e., four members in a team can perform two roles each from Belbin eight-role model. Doubling up of team roles, although, is not the most successful approach since some members may not be able to cope with dual roles. But in a small team of six members roles can be easily defined, this can improve team performance due to all members sharing responsibilities and corresponding most closely with their skills (Belbin, 2000; Johnson & Johnson, 1999).

Parrish (2001) believes members in small teams work better together than those in large teams. They manage themselves easily with less time being wasted in meetings,

decision making, establishing team common goal and responsibilities. In large sized teams members may not get the opportunity to voice their own opinions, ideas or thoughts, thereby demonstrating characteristics of a dysfunctional team.

In situations where team goals are complicated and require team members to be able to resolve problems and reach group agreements favourably it is an advantage to have a team of six or seven members to be most effective. Smaller size teams of two to three members are not favoured because they do not have a variety of skills and experience that they can bring into the team thus resulting in low quality performance. On the other hand, large teams consisting of ten or more members are also seen to under perform because interaction and communication becomes difficult, members can become dissatisfied giving rise to confusion and frustration while dropping performance and productivity levels (Beatty & Barker-Scott, 2004).

Johnson and Johnson (1999) suggest that a small team size would be suitable within the cooperative learning setting in higher education where teams can comprise of four to six members, however they need to consider issues such as time limits, experience in teamwork, student age and resources available. Furthermore it is important when deciding the team size to consider whether the team members possess the range of abilities and skills to do the project and to “help create a sense of interdependence and accountability” (Sutherland & Bonwell, 1996, p. 77). Therefore, in view of team size, teams need to take into account the time allocated to complete the project, the range of abilities, skills, expertise, creative ideas member’s can contribute to the team, and, the material and resources available for each team.

Multimedia/IT students in higher education at TAFE and ECU University are required to develop a team-based major project for a real client during their final year. Students are expected to form groups with the average team requirement consisting of four to five team members. Students are also expected to make use of their skills and knowledge gained through their course to equal the industry standards and meet client expectations (Create, 2001). In the Multimedia development courses at Edith Cowan University students are encouraged to form their own teams with three to five members in each team based on their skill strengths. Teams can be made up of a project manager, graphics designer, programmer and instructional designer, however there can be shared roles or new roles can be created or combined if the number of team members is small (Luca & McMahon, 2005). Based on the study above it appears a team consisting of an

average of three to five members could be considered an ideal team size for multimedia development to maximise members' involvement where roles and responsibilities can be distributed evenly thus creating mutually interdependent and accountable team members.

2.2.2.2 Type Of Project

Teams should start with an "orientation to task" where they endeavour to determine the purpose of the task, and gather information and resources needed for the task development (Gordon, 2002, p. 181). This is supported by Harris (2003) who also suggests the initial team assembly phase should include an overview of the project that defines the need to provide team members with an outline of the project and strategies, techniques, time and effort involved in its completion. This can assist team members to have a clear idea about the project.

In Multimedia development courses at Edith Cowan University students in team-based projects are encouraged to select their own projects in line with their skills strengths and knowledge base, although these are checked by tutors for suitability according to team skills, roles, client and achievability (Luca & McMahon, 2005).

2.2.2.3 Goals

Tyson states that a "goal is an image of a future state of affairs towards which action is oriented" (1996, p.106). An effective team is where team members have the abilities to determine and achieve their goals successfully such as when they produce a 3-D movie (goal), develop a website (goal) or build a new program (goal). The reasons behind individuals forming into a team and the process involved in their team formation, as well as the way they set their team goals, roles, and norms plays a significant role in the success of the team. Gordon (2002) believes some common reasons that bring individuals together as a team are:

- Common needs: eg. Complete the course unit;
- Common interests: eg. Multimedia or IT development;
- Common goals: eg. Project completion;
- Physical proximity: eg. In the same area of study; and
- Common commitment levels: eg. High standard of work.

Initial team *goal* setting is when members attempt to identify the purpose for team members coming together. A source of motivation and commitment for team members

is when the team goals are set through active participation by all individuals in the team, encouraging the overall team goals to become individual goals (Tyson, 1996). To identify goals team members ask themselves what they need to achieve to succeed – for themselves and the overall team. Are the overall goals of the team the same for each team member? All members should clearly identify and match their personal goals with the team goals at the initial stage of team formation (Kipp & Kipp, 2000).

As demonstrated previously in Figure 2.6, Beatty and Barker-Scott describe their task strategy that identifies “the goals, activities, work processes, tools, and technology the members use to achieve their overall purpose” (2004, p. 17). They state that team members need to identify the purpose for them coming together and strong team building occurs when members investigate their challenge together and create a meaningful and fulfilling joint purpose that they all want to contribute to. A team needs to acknowledge the importance of their challenge towards the project’s success because the outcome would create a meaningful purpose. Team members also need to understand why the team is important for each member (Beatty & Barker-Scott, 2004). In defining the team purpose, team members have the opportunity to understand why the team is important to them and what they hope to gain by teamwork. There is a better chance for the team to perform well if the team goal has a significant meaning for each member.

Clear goal setting in the task strategy means that team members organise their purpose and priorities around tasks and results that they can monitor. Clear goal setting becomes an important tactic for members to assign tasks efficiently, track the effectiveness of the project and hold each other accountable on performances. Clear goals improve team performance and receiving feedback on goal performance improves overall team productivity. When goals are set it “clarifies what is expected of the team, as well as how each member can contribute to goal achievement” (Beatty & Barker-Scott, 2004, p. 31). Therefore goal setting can help identify not only what the end result will be but also the strategy needed to reach that end result. The goal setting process also helps teams in defining proper planning and scheduling according to tasks and roles, as well as setting project and task deadlines which are discussed in Phase 3 - Team Operation Rules.

When a team understands its purpose it then proceeds through the task of creating a vision by identifying objectives and suitable processes to achieve those objectives. Beatty and Barker-Scott describe this step as a “beginning with the end in mind” (2004,

p. 24). In outlining objectives team members determine what level of performance is needed for project completion, how team members will work together and the type of collaboration required (Harris, 2003). At this stage the team would need to be creative and imaginative towards their ideal solution. With this in mind the team can develop priorities and define suitable approaches and resources for their work.

Harris (2003) recommends that team members should state their individual and overall expectations from the team also they should clarify difficulties or obstacles associated with task accomplishment. Similarly, Kipp and Kipp (2000) suggest that team members need to ask themselves what is expected of them and what they expect of each other. This information helps the team leader to identify solutions and prevent problems.

Team vision is how team members would like their performance and results, their work and work area and their relationship to each other to look like. By agreeing on the team vision a team can benefit by members working together towards the common goals (Romig, 1996). The team and client must determine and share the vision of the project and how it will be completed. Although identifying a clear vision and objectives is a communication issue that requires the team to have skills in both project planning and management it is recommended to be defined at the team establishment phase (Wysocki, 2002).

From the literature it is apparent that goal setting is an essential criteria as it describes the purpose of the team's objectives so that team members can relate to it and work together to achieve those objectives.

2.2.2.4 Skills

A successful team is made up of members who have a balance of technical skills and personal abilities along with commitment and a personal desire to achieve the common goal (Adair, 1986). "What turns team-building into an art is that the bricks, like legendary men, are made of different types of clay and not wholly predictable after firing" (Belbin, 2000, p. 136). As each team member will bring different skills, abilities and personal attributes to the team, it is important to identify the types of skills available to enable proper distribution of tasks that will increase teamwork success. Identifying abilities of the team members during the team building process can help determine the type of knowledge, skills, experience, strategies and focus on subject matter members

would possess, as well as other positive contributions they could offer. Harris (2003) suggests five areas of competencies that need to be identified.

1. *Knowledge base* is the knowledge level of the individual that is most relevant to the project. This could include technological knowledge, market dynamics such as trends and regulations and knowledge of strengths and weaknesses.
2. *Skills* include the knowledge as well as the experience in applying that knowledge towards a successful outcome.
3. *Tools* specify the range of abilities for using a variety of applications and methodologies that can enhance or empower the project quality.
4. *Processes* identifies whether the person has knowledge in planning strategies, organising, scheduling methods needed for the project.
5. *Focus* identifies the commitment level, goals and purpose as well as the ability to maintain consistency in performance for the duration of the project.

Furnham (1994) describes successful teams as having a balance of mental abilities. Parrish (2001) adds that a team needs to have complimentary skills such as technical as well as interpersonal, problem solving and decision-making skills to be able to work well together. Technical skills include the experience and knowledge necessary for teams to achieve their common goals. Interpersonal, problem solving and decision-making skills such as listening, expressing accurately and awareness of non-verbal messages can improve communication and commitment levels in the team and increase team performance (Putnis & Petelin, 1999). Beatty and Barker-Scott (2004) assert that team members should be responsible for completing agreed tasks. They should have abilities and viewpoints to share and stimulate the discussion process.

Based on the research above it has been identified that professional skills are just as important as technical skills in any team and are essential attributes required for successful teamwork. However, the right mix of individuals may not necessarily make the perfect team therefore, it is important to be able to recognise the individual talents and abilities to fully utilise and properly allocate roles according to those abilities. Also, individuals in the team need to respect each other and develop on members' skills to achieve their common goal.

2.2.2.5 Roles And Tasks

Furnham describes successful teams as having “roles best suited to their abilities, the ability to sense their own faults, and are sensitive to competition for particular roles”

(1994, pp. 369-372). Team members need to clearly identify their roles according to their strengths and weaknesses within the team. Team members also need to have a clear understanding of each other's roles and responsibilities (Kipp & Kipp, 2000). Parrish states "roles of team members, with the associated responsibilities for those roles, are dependent upon the project and the expertise of the team member" (2001). Therefore identification of suitable roles and the existing technical expertise members offer can increase team members' contribution and productivity.

In support Belbin (1997, p. 88) states, "a team role is a characteristic way of behaving and contributing to a team and is very much dependent on the attributes of the person". He also believes it would be a great advantage if it could be predicted which person was most suitable for a particular task. He considers successful teams having members with roles according to their abilities.

Belbin (1981) has defined his own list of attributes for eight team roles and attached some positive qualities, allowable weaknesses and observed contributions alongside each role, as shown in Table 2.3. According to Tyson (1989) Belbin's model was based on the findings of the research carried out by the Industrial Training Research Unit and the Administrative Staff College in the U.K. The findings had led the researchers to the conclusion that an effective team would comprise of a chairman or a shaper, an innovator, a monitor-evaluator, one or more company and team workers, resource investigators and completer-finishers.

Table 2.3 - *Belbin's Eight Team Roles (1981, p. 78)*

Type	Symbol	Typical Features	Positive Qualities	Allowable weaknesses	Observed contributions
Chairman	CH	Calm, self confident, controlled	A capacity for treating and welcoming all potential contributors on their merits without prejudice - strong sense of objectives	No more than ordinary in terms of intellect, creative ability	Clarifying the goals, objectives. Selecting the problems on which decisions have to be made, and establishing their priorities. Helping establish roles, responsibilities and work boundaries within the group. Summing up the feeling and achievement of the group and articulating the group verdicts.
Shaper	SH	Highly strung, outgoing, dynamic	Drive and readiness to challenge inertia, ineffectiveness, complacency	Proneness to provocation, irritation and impatience	Shaping roles, boundaries, responsibilities, tasks and objectives. Seeking to find pattern in-group discussion. Pushing the group towards agreement on policy and action towards making decisions.
Plant	PL	Individualistic, serious minded, unorthodox	Genius, imagination, intellect, knowledge	Up in the clouds, inclined to disregard practical details or protocol	Advancing proposals, making criticism that lead up counter-suggestions. Offering new insights on lines action already agreed.
Monitor Evaluator	ME	Sober, unemotional	Judgment, discretion, hard-headedness	Lack inspiration or the ability to motivate others	Analysing problems & situations. Interpreting complex written material and clarifying obscurities. Assessing the judgments & contributions of others.
Resource Investigator	RI	Extroverted, enthusiastic, curious, communicative	Capacity for contacting people & exploring anything new. Ability to respond to challenge.	Liable to lose interest once the initial fascination has passed	Introducing ideas and development of external origin. Contacting other individuals or groups of own volition. Engaging in negotiation type activities.
Team Worker	TW	Socially, orientated, rather mild	An ability to respond to people and to situations, and to promote team spirit	Indecisiveness at moment of crisis	Emphasizing the need for task completion, meeting targets and schedules and generally promoting a sense of urgency. Looking for and supporting errors, omissions and oversights. Galvanising others into activity.
Company Worker	CW	Conservative, dutiful, predictable	Organising ability, practical common sense, hardworking, self discipline	Lack of flexibility, unresponsiveness to unproven ideas	Transforming talk and ideas into practical steps. Considering what is feasible. Trimming suggestions to make them fit into agreed plans and established systems
Completer Finisher	CF	Painstaking, orderly, conscientious anxious	A capacity for follow through, perfectionism	A tendency to worry about small things, reluctance to 'let go'	Giving personal support & help to others. Building on to or seconding a member's ideas & suggestions. Drawing the reticent into discussion. Taking steps to avert or overcome disruption of the team.

According to Belbin (1981) the chairman and shaper are team leaders, plant and monitor/evaluator are creative thinkers, resource investigator and team worker are negotiators, and company worker and completer/finisher are company workers. Therefore as described in the table above a chairman is a leader and coordinator, a shaper overcomes obstacles, a plant is an innovator and creative thinker, a monitor-evaluator is an analyser, a resource investigator is an explorer, a team worker promotes team spirit and is a supporter, a company worker is practical and a completer-finisher gets work done. Belbin (2000) describes contributing factors that can make a successful team, as follows.

The Person In The Chair

The chairman would have good mental ability and be skilled in using resources to the advantage of the team. He would communicate well with his team members and also be

capable of assessing and reaching a decision on what is needed in a situation. He would be a person who would achieve his personal goals or the goals of his team. The successful chairman or team leader would be on the same wavelength as his team, which means that if they did not understand something he did not either.

The Existence Of One Strong Plant In The Group

A successful team would have at least one strong plant (serious minded person) as a team member who is creative, clever and offers new insight on agreed upon actions. The plant would advance proposals and provide criticism that could lead to counter-suggestions. His ideas should be taken into account and recognised by the team. How the plant is treated within the team has a major effect on the success of the team. Plants are usually people who would pick up ideas from other team members and develop on them. The plant team role is a great asset to the team as this role can work hand in hand with the chairman or team leader introducing new ideas without taking on the leadership role themselves.

Fair Spread In Mental Abilities

Successful teams would have a fair spread of mental abilities. According to Belbin the results from his experiments suggested that teams functioning well had some members with a slightly higher than average mental ability while other members were slightly below average. Teams with a wide spread of mental abilities seemed to work better together than teams that were intellectually at a similar level. The reason for this could be that the gap between the two mental ability levels caused team members to look for positive team member roles, enhanced competition and had the effect of encouragement in finding ways to fulfil themselves within the team.

Spread In Personal Attributes Offering Wide Team –Role Coverage

Successful teams need to have a good distribution in likely team roles. To work well a team would need to have at least one completer, and a company worker. A resource investigator would also be an important role in a successful team. The team would benefit from including team members with extrovert as well as introvert qualities. Most successful teams have a wider range of team-role strengths on which to draw than less successful teams. A team with a range of different types of members reduces the chance of team conflicts that possibly will happen when two or more people compete for the same role.

A Good Match Between The Attributes Of Members And Their Responsibilities In The Team

Another contributing factor for a successful team is when members found team roles that suited their personal characteristics and abilities or skills. In less successful teams, the team role was allocated according to their experience and not according to their abilities, meaning it was not important how well they performed in that role as long as they had done something like it previously.

An Adjustment To The Realisation Of Imbalance

Team members must understand the definition of team imbalance, the reason for that it may lead to team failure. Team members must consciously take account of their team role strengths while being equally conscious of and compensating for their team role weaknesses. This is done through identifying the areas of weaknesses in the team and appointing someone to carry out the tasks that seem to belong to a missing team role. For example, if a team became aware that a completer role is missing, which could result in deadlines being missed, a member of the team who is the closest matching with a completer role could be appointed for that role in addition to his existing role. This process could lead to a successful team even though it lacks a member with a completer role (Belbin, 2000).

Stevens (1998) used Belbin's eight roles for team effectiveness in his study of team formation and evaluation. He used three types of team formations in his testing:

- Random formation;
- Friends formation; and
- Formation using Belbin's eight role model

Teams who used Belbin's role model achieved the highest score and were the most effective in relation to time and quality of final product. The results indicated clear trends in the importance of:

- A team having a complement of the Belbin roles;
- The company worker, recourse investigator and team worker roles; and
- Leadership through the shaper role.

Margerison and McCann (1989) support Belbin's model and describe a team-role measure with eight types that are bipolar such as: explorer-promoter; assessor-developer; thruster-organiser; concluder-producer; checker-inspector; upholder-maintainer; reporter-adviser; creator-innovator (Furnham, 1994.). However, Furnham

(1994) states that Belbin (1993), and, Margerison and McCann's (1989) tests of team-role types can present various problems when used for comparison of a wide range of individuals such as in large teams. Harris (2003) believes identifying individual personalities as in Belbin's model are essential for teamwork success because they can help in problem solving, decision-making and interpersonal relationships. He concludes that a team with a balance of Belbin's personalities would be more likely to succeed. Tyson (1989) believes that Belbin's eight-team role model is useful for building effective teams especially at the pre-grouping stage. The model can assist with problem solving in dysfunctional teams.

Teams can benefit from members who have knowledge relating to teamwork success as they are aware of the importance of effective attributes needed for their team to be successful. This could minimize the chances of teams being comprised of incompatible factors and outcomes such as reduced costs, saving valuable time, reduce chances of conflict and team break ups as well as reduced risks of poor project performance. A good team with a balance of roles, acceptable behaviours and commitment levels is critical to the success of a project. Belbin (1981, p. 77) states that successful teams need to have a balance of skills "so that the weakness of one member can be underpinned and strengths used to full advantage".

Therefore it is apparent from the literature that identifying roles early in the team selection process would be useful to draw attention to strengths and weaknesses of team members, it can also help the team to make appropriate decisions in order to work jointly in achieving team objectives.

2.2.2.6 Commitment

Harris (2003) suggests the establishment phase in the team development cycle would need to consider the team leader and members' commitment, which specifies the need for the team members coming together to communicate their commitment and acknowledge the importance and responsibility of the leader towards building an effective team. A team member's ability to be more positive, confront problems openly and discuss alternative solutions encourages each member to meet their team commitment.

Common purpose and strong commitment are important to any team as both encourage team members and push them forward towards their goal. Maintaining focus on team

goals will help in increasing productivity. For instance remarkable enjoyment can be achieved from completing a certain task successfully (Parrish, 2001). Therefore strong commitment to a common purpose is essential to team success and can make goals realistic and achievable.

Teams made up of members who are skilled, confident, experienced and a committed unit can increase team performance and work well together as a group (Welbourn, 2001). The nature of successful teams is generated from their strong professional skills as it facilitates personal satisfaction and growth. Strong commitment to team values, goals and objectives could boost team member contributions and new ideas (Welbourn, 2001). Each team member must be committed on common objectives and accountable for their contribution to both team and project, this can be achieved by combining team tasks and individual objectives.

2.2.2.7 Summary of Phase 2 - Team Establishment

The study suggests that a team made up of three to five members in Multimedia/IT development areas in higher education to be an appropriate team size. Smaller teams result in members' using their full potential and involvement, balanced spread of roles and responsibilities, and creating mutually interdependent and accountable team members. However, for smaller teams to be successful they need to be skilled and competent in deciding an appropriate team size. Implementing team management practices that include task, social and commitment strategies can help in identifying key successful attributes in building effective teams.

At this stage team members are not just thinking about their personal goals anymore but are also collectively considering the team's goals and objectives. Clear goal setting can help clarify what is expected of them, what is required from them to complete the task, what is the end result and the strategies that need to be applied to achieve that result. Goals can be determined when team members have a clear idea about the type of project and tasks involved. This can assist them in appropriate distribution of team members according skills, roles, abilities, identifying resources available, time needed and processes involved in its completion. Each team member brings different skills and abilities to a team, for that reason it is important to identify the types of skills, abilities, knowledge, expertise and experience members possess so tasks and roles are distributed appropriately among team members. Complimentary skills such as interpersonal, problem solving and decision-making are also necessary to increase team effectiveness.

A good balance of both technical skills and mental abilities can contribute to team success.

The type of project and its tasks determine the types of roles required for its completion. Identification of skills and abilities of team members assists in the allocation of suitable roles to accomplish the team's tasks. The purpose of determining abilities before distribution of roles helps identify strengths and weaknesses in a team and provides proper balance of team roles to complement each other. Matching roles to the abilities, interests and skills of team members will create a sense of ownership where members will feel responsible and accountable to those roles and responsibilities that come with it. Based on the study, teams that utilised Belbin's (1981) eight role model seem to increase the chances of their success. Some possible complementary roles defined in project teams in Multimedia/IT development environments in higher education could include a project manager, designer, programmer, resource investigator, media producer and team worker. To take full advantage of properly allocated team roles, students need to ensure that their teams consist of members with a balanced set of skills and abilities so that they can minimize their weaknesses and maximize their strengths to achieve their team goals. Team members' satisfaction with their roles has a significant influence on their commitment level in achieving team goals and objectives. Closer communication leads to strong commitment levels that can boost performance and encourage creativity among team members.

The literature reviewed in the establishment phase section of the team life cycle identifies key attributes and processes needed at the team formation stage for team success. Table 2.4 below outlines a summary of the key attributes derived from the literature.

Table 2.4 - Key Attributes And Processes - Establishment Phase

Attributes	Description			
Team size	The most commonly recommended team size was 3-5: <ul style="list-style-type: none"> • Team size can vary depending on the balance of skills required (Harris, 2003) • Four to six members if competent in team size issues; smaller is better (Johnson & Johnson, 1999) • Small teams work better together (Parrish, 2001) • Team size according to range of skills and abilities; members managing their team size can “help create a sense of interdependence and accountability” (Sutherland & Bonwell, 1996) • Multimedia/IT teams of four to five members (Create, 2001) • Three to five members; roles can be shared, created or combined (Luca & McMahon, 2005) 			
	Project type	<ul style="list-style-type: none"> • To be determined at team formation stage (Gordon, 2002) • Outline project and task requirements (Harris, 2003) • Students select project type according to skill strengths, knowledge (Luca & McMahon, 2005) 		
		Goals	<ul style="list-style-type: none"> • Purpose for team members coming together (Tyson, 1996) • Common needs, interests, proximity, commitment (Gordon, 2002) • Identify and match personal goals with team goals; what is expected of them and what they expect of each other (Kipp & Kipp, 2000) • Clear goals clarify what is expected of the team (Beatty & Barker-Scott, 2004) • Determine level of performance required for project completion (Harris, 2003) • Common goals through team vision and mission (Romig, 1996) • Clear vision and objectives at team formation (Wysocki, 2002) 	
			Skills	<ul style="list-style-type: none"> • Balance of technical skills and personal abilities (Adair, 1986) • Identify types of skills available to enable proper distribution of tasks (Belbin, 2000) • Identify abilities to determine type of knowledge, skills, experience, strategies, focus on subject matter (Harris, 2003) • Successful teams have a balance of mental abilities (Furnham, 1994) • A team needs to have complimentary skills such as technical as well as interpersonal, problem solving and decision-making skills to be able to work well together (Parrish, 2001) • Interpersonal, problem solving and decision-making skills can improve communication and commitment levels (Putnis & Petelin, 1999) • Abilities to share and stimulate the discussion processes; responsibility and accountability (Beatty & Barker-Scott, 2004)
	Roles			<ul style="list-style-type: none"> • Roles best suited to their abilities (Furnham, 1994) • Clear understanding of each other’s roles and responsibilities (Kipp & Kipp, 2000) • Roles and associated responsibilities are dependent upon project type and member expertise (Parrish, 2001) • Successful teams have members with roles according to their abilities (Belbin, 1997) • Team formation using Belbin’s (1981) eight roles for team effectiveness (Stevens, 1998) • Supporting Belbin’s (1981) eight role model (Margerison & McCann, 1989) • Teams with balance of Belbin’s (1981) roles more likely to succeed (Harris, 2003) • Belbin’s eight-team role model useful for building effective teams; can assist with problem solving in dysfunctional teams (Tyson, 1989)
Commitment				<ul style="list-style-type: none"> • Team leader and members’ commitment (Harris, 2003) • Encourages and motivates team members towards their goals (Parrish, 2001) • Strong commitment to team values, goals and objectives can increase team performance and boost team member contributions (Welbourn, 2001)

2.2.3 Phase 3 - Team Operation Rules

The third phase in the team development life cycle (Figure 2.7), involves the way teams set up their rules of operation or norms and standards by which they will jointly achieve their goals. But first, it is important to know what setting team rules or norms mean.

Team operation rules or norms are usually “unwritten and informal expectations that guide the behaviour”

of team members (Gordon, 2002, p. 186). These norms can develop through interaction, reinforcement or discouragement of certain behaviour. Norms can be set through interaction and reinforcement, for example, when all team members participate and agree to a particular behaviour or procedure that then becomes acceptable behaviour and a norm, also, when all team members disagree on a particular action that can then become a norm or a team standard to be followed for the duration of the team life cycle.

Ancona, Kochan, Scully, Van Maanen and Westney (2005) believe the team operation rules phase includes two categories with issues that need to have set norms and standards to help achieve member satisfaction and team effectiveness.

1. *Internal team processes* are generated from team members' interaction in completing the team tasks and their efforts in keeping the team united. These internal processes include issues such as communication, influence, task and maintenance function, decision-making, conflict management, atmosphere and emotional issues.
2. *Boundary management processes* are where teams set their limits for acceptable behaviour, identify the external people involved in the project, coordinate and negotiate with team on deadlines, and identify management support.

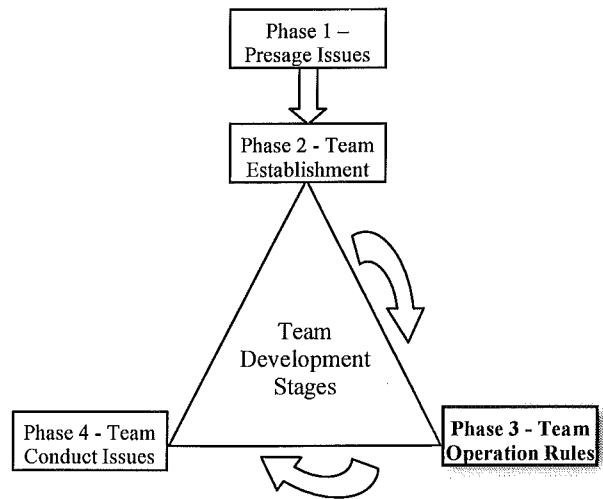


Figure 2.7. Team operation rules phase.

Therefore, based on the authors above it is apparent that the team operation rules phase can follow the two main categories such as team management and team behaviour. These categories include issues that were identified by many of the authors in the review (Figure 2.8).

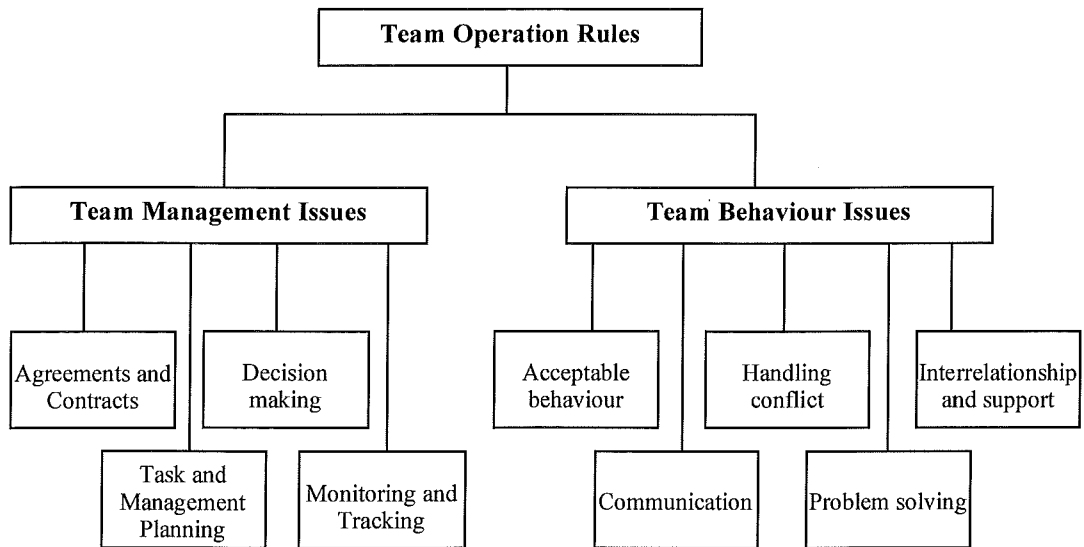


Figure 2.8. Conceptual framework of team operation rules phase.

At the end of this section (2.2.3) a summary is shown for the ‘Team Operation Rules Phase’ (Table 2.5), summarizing all the key issues discussed in this section.

How many rules should team members set in order to be an effective team? Romig (1996) recommends teams to set at least five but no more than fifteen ground rules through the project life cycle to be effective. Beatty and Barker-Scott (2004) concur that a few clear, concise and helpful rules for teamwork set early in the team life cycle will help team members understand what is expected of each other in terms of behaviour.

McGourty and De Meuse (2001) believe team members generally encounter difficulty in setting rules for their group behaviour, determining the resources needed in order to complete the project and outlining schedules for the project duration. They suggest that one way of pinpointing what processes need to be set at this stage is by examining the shortfalls of dysfunctional teams. Dysfunctional teams display lack of effective communication, little or no interdependence, members act as individuals instead of as a team, they do not feel responsible for following agreed tasks, and most of all they have no milestones or action plan, lack of structure and direction to succeed as a team.

Therefore members need to organise themselves by setting a team structure that will enable them to meet their goals. For example teams decide in this phase how it will make decisions and resolve conflicts (Wysocki, 2002). This process helps to create awareness of the team's strengths and weaknesses to equip team members with effective strategies to deal with situations that may arise.

A proper team structure on decision-making, conflict resolution, people resources, alternative approaches, schedules and resource requirements will help identify important issues related to team and project, for example, who will do what, why it is necessary and what criteria must be met to complete the project. The advantage of setting rules of behaviour and processes or norms will serve to reduce confusion by knowing exactly what is involved in the tasks and the corrective measures needed to be taken in the event of problems; give a better understanding of tasks, resources and outcomes; and, improve team effectiveness by taking full advantage of resources available and saving valuable time (Wysocki, 2002).

Setting and organising norms and standards in issues related to team management and team behaviour can achieve member satisfaction by creating "a positive experience through commitment, trust and meeting individual needs" (Ancona, Kochan, Scully, Van Maanen & Westney, 2005, p. 137). Team management relates to task management issues while team behaviour relates to social boundaries and acceptable behaviours. Effectiveness in these categories can result in optimum team member satisfaction and form a foundation for the final phase in the team life cycle.

2.2.3.1 Team Management Issues

Team management issues involve setting up the norms and standards after the team has been established and members have already identified their overall purpose, vision and goals. These norms and standards define how the team members will manage their tasks, roles and responsibilities to achieve their overall purpose, vision and goals. "A critical issue for team success is team membership, having the right mix of skills, experience and leadership to ensure that the team can deliver on its performance expectations" (Beatty & Barker-Scott, 2004, p. 36). It is important for team members to understand that it is not how the team manages their tasks but the rules they set collectively to manage a particular task which could be to collect data, analyse data, seek feedback or test solutions (Beatty & Barker-Scott, 2004). Some key areas where rules or protocols need to be set are discussed below.

Agreements And Contracts

According to Kipp and Kipp (2000) team members need to define agreements on work ethics and follow up processes, and then to confirm that rules have been laid out in the team and agreed upon. Decision-making process and agreements should include distribution of tasks, responsibilities and quality. Team members need to set their boundaries in which they negotiate their expectations and identify who are involved in those negotiations (Ancona, Kochan, Scully, Van Maanen & Westney, 2005). They need to identify what is expected of them and how much they are willing to contribute to the project accomplishment.

A good approach could be for teams to make use of 'team contracts' as proposed by Luca and McMahon (2005), to negotiate how much each member is willing to contribute in relation to tasks and quality and what marks they want to achieve in their assessment. Team contracts help to "promote responsibility within the team as well as define the quality expected from each team member" (Luca & McMahon, 2005). This process can help team members to plan, monitor and evaluate their work during the project life cycle as they are aware of the commitment and performance level they have agreed to in the team contract.

Task And Management Planning

Early in this team development stage members need to identify the key people involved in the project to ensure that important information, processes and decisions are understood and accepted by all team members (Beatty & Barker-Scott, 2004).

Parrish (2001) describes a team as "a group of people with complimentary skills who are committed to a common ... approach for which they hold themselves and each other accountable". A common approach refers to the steps or methods that team members set and implement together as a team to manage tasks, roles, responsibilities, project plan, project procedures, communication procedures, timesheets and management procedures. Beatty & Barker-Scott (2004, p. 39) also believe that "what sets smart teams apart from others is not which decision tool they use, but that they discuss and agree on norms and protocols for important aspects of working collectively".

Based on the literature it can be seen that teams need to clear on all decisions that have been made and processes involved. Team members need to set their rules of operation in issues such as team meetings, timesheets, timeline setting, scheduling and

monitoring. Proper decision-making also requires norms and protocols that need to be set and agreed upon by all team members.

Decision Making

In self-managed teams where teams more or less choose their own members, project, and roles would generally use a group decision-making approach. Team members that have more power in the decision making process are seen to be more “productive, satisfied and committed” towards their team goals (Gordon, 2002, p. 194). Group decision-making encourages synergy where members combine their knowledge and contribute effectively towards decisions; it also encourages creativity because diversity in members helps them come up with a variety of solutions to problems; and, acceptance of decisions because the decisions have been made mutually and team members are committed to their input. Group decision-making promotes responsibility, accountability and commitment among team members (Gordon, 2002). Beatty and Barker-Scott (2004) agree that self managed teams have more control on their decision making process when deciding their purpose, goals and rules of operation.

Along with the decision making process comes the leadership role. Team members can learn and develop through sharing leadership responsibilities. The benefit of sharing the leadership responsibilities is that as the team gains experience team members will become responsible team players (Beatty & Barker-Scott, 2004). The individuals in the team display shared responsibility and ownership where they value team leader decisions and solve team problems effectively. Team members utilize their skills and roles professionally by rotating the leadership role among them to enable constant improvement. This process helps them identify, establish and stick to good norms that can often lead to welcoming all proposed ideas and show great respect to one another regardless of any differences, henceforth it develops into a sort of team culture, a way of doing things without having to say how to do it. All team members’ contributions and efforts are acknowledged by one another, creating a sense of belonging, recognition and improving team synergy (Hays, 2004).

Therefore, a group decision making approach in teams can encourage productivity, commitment and group synergy. With all members being mutually involved in the decision making process it can increase responsibility, accountability and ownership among members. By being mutually involved or sharing the leadership role by rotating

it among members can help team members gain experience as well as allow each member to input valuable contributions towards the team's overall goals.

Monitoring And Tracking

Wysocki (2002) suggests the implementation of a monitoring schedule in this phase that outlines the tasks that need to be completed in the project, the time involved to complete those tasks, the members allocated for those tasks and the outcomes expected as a result of task completion. The team leader must have in place a monitoring system that tracks the progress of tasks, deadlines and deliverables, and is capable of adjusting the system accordingly to avoid potential problems.

In the Multimedia development environment at Edith Cowan University an online bulletin board or 'Blogger' was utilised to help teams monitor progress and reflect on their contributions with both their peers and team members (Luca & McLoughlin, 2005). The 'Blogger' is a system designed to enable students to record weekly progress, task schedules and contributions online. At a cooperative based learning environment this process seems constructive as it encourages students to be responsible for their agreed and allocated roles and tasks. It creates interdependence and enables students to develop social and professional skills while enhancing their collaborative and communicative know-how. Due to the transparent nature of the bulletin board that allowed tutors and team members to have access to the information input by students, it helped team members monitor their own and each other's progress and evaluate their actions to learn how they could improve.

The literature suggests the implementation of a tracking and monitoring system in this phase such as Gantt charts to enable team members to follow on progress of allocated tasks and deliverables. Another successful approach identified is the 'blog' method that reflects students' contribution and enables peers to monitor progress. Monitoring and tracking helps create interdependence among students and encourages them to become responsible for their roles and tasks.

2.2.3.2 Team Behaviour Rules

Norms and protocols involve team members setting acceptable rules of behaviour together, to help build interrelationships, communicate well together, allow members to express themselves openly and thus result in members' satisfaction. Here they decide

what approaches they take towards problem solving, decision-making, disruptive behaviour and interpersonal conflicts (Beatty & Barker-Scott, 2004).

Acceptable Behaviour

Romig believes that setting team values is an important factor that has a positive influence on project outcomes. Team values that relate to expected treatment and behaviour should be set early in the development phase of the team life cycle (1996). Similarly Harris (2003) suggests innovative team values should be set to accelerate team performance. A big concern in a team is not having a clear idea of one's limits and behaviour. By setting protocols and norms team members are clear about their highest values. Team members need to feel satisfied with team behaviours because it is an important aspect in working collectively for their goals (Kipp & Kipp, 2000). Similarly, Beatty and Barker-Scott (2004, p. 17) suggest that how the team sets their rules and what rules they set determines how well they operate together, in addition they recommend implementation of "processes and protocols to satisfy people's needs for voice, meaningful involvement, and relationships" in this phase of the team development life cycle.

Beatty and Barker-Scott (2004) believe that norms are consistent behaviours such as shared values and beliefs. Norms are also the expected behaviour by the team in which they develop methods or practices for dealing with unacceptable behaviour such as constant disruption in conversation, meeting delays, change or shift of topic. These disruptive behaviours can result in team discomfort and call for setting helpful protocols or norms that can control team behaviour and apply mutually satisfying solutions. Therefore to enable team effectiveness, members need to consider carefully clear measures for their behaviours and to uphold the team's common values. Clear setting of norms regarding team shared values can encourage positive outcomes such as members displaying shared responsibility, ownership, good use in decision making and working collectively towards achieving their common goal.

Communication

The success of a team depends on how well team members communicate with each other. How much they respect each other and allow each member to contribute to the team equally. It is important to have a climate of trust, support and openness among team members. Katzenbach and Smith (1993) affirm that professional skills where

“team members are able to state their opinions clearly, listen actively and provide helpful suggestions to others” are essential factors of good communication. These factors would bring the whole team to function as a whole (Kipp & Kipp, 2000, pp. 138-139).

Beatty and Barker-Scott (2004) suggest that teams with good relationship and communication skills utilize brainstorming methods to clarify their goals, processes, roles and tasks to better understand what they are trying to accomplish. In productive teams members communicate and work well together and challenge each other positively to enhance learning opportunities (Hays, 2004).

Good communication techniques where members share information and ideas by attempting to understand each other and by creating the necessary atmosphere for meaningful dialogue will also help in team problem solving (Beatty & Barker-Scott, 2004).

Handling Conflict

Teams often struggle when they experience conflicts and that can slow the team progress. It is critical for teams to establish guidelines to identify; what is expected from each member, how they participate and how they will handle team conflicts. Teams can retain their focus on the overall purpose by establishing norms that encourage openness and acceptance of diverse views and opinions. Team members should not ignore problems but instead a problematic matter should be brought to the surface, discussed openly with the team and procedures set in place to deal with the situation. This process of consensus will encourage team members to work jointly through problems, build on each other's creative ideas, empower the team members, make them feel valued and create a sense of security so that they are able to manage their conflicts and decision-making.

Beatty and Barker-Scott (2004) outline five central causes of conflict such as:

1. Relationship conflicts that may be caused due to poor communication, stereotypes, negative behaviours or negative emotions;
2. Data conflicts due to lack of information, misinformation or misinterpretation;
3. Interest conflicts caused by competition, procedural or psychological issues, conflicts of interest or substantive issues such as money or time;

4. Structural conflicts caused by limited physical or geographical resources or authority; and
5. Value conflicts caused by incompatible belief or value systems.

By understanding a conflict and evaluating it according to these five categories it becomes easier to determine and assess the cause of the conflict and its solution. It has been noted that teams who openly acknowledge existing or past problems and work together to put in place a procedure to deal with any future similar occurrences report higher levels of team satisfaction and performance.

Problem Solving

Teams are productive because of common shared purpose, ownership and members' investment of time and effort towards the overall purpose of the team. Teams produce when they are clear on roles, rules and common practices such as the decision making process, or the problem solving process, and when team members offer support and are a source of encouragement to each other. The recognition of the variety of skills and abilities available within the team helps the team grow as they work towards a common goal. This can be seen when a team member shortfalls or conflict occurs, other team members volunteer to help and solve the problem so as to maintain a good team balance and the flow of team progress (Hays, 2004).

Beatty and Barker (2004) suggest a six step protocol for team problem solving that includes steps such as:

1. Problem identification and description;
2. Problem analysis;
3. Option generation;
4. Solution selection;
5. Action planning; and
6. Follow through.

The authors believe that when teams use systematic processes and skills to solve team problems they enhance the quality of their thinking and increase team productivity.

Problem solving processes and skills aim to improve team member communication and develop the quality of their thinking. Without proper protocols in place to handle problems teams can waste valuable time in convincing and dismissing instead of listening, understanding and learning.

Interrelationship And Support

Beatty and Barker-Scott (2004) assert that teams need to build interrelationships with the management or lecturer to help them achieve their goals. Moreover, teams who do not have a clear idea of their scope and limits will find it harder to meet their obligations and therefore would need to have closer communication with a support structure for key decisions. Another important factor is the identification of the team's reporting structure. This involves team empowerment with authority and decision making to the extent that team members are responsible for their actions. This process allows members to develop, evaluate and share feasible options, feel a sense of ownership, improve performance, encourage logical thinking and introduce new creative ideas (Beatty & Barker-Scott, 2004).

Previously in the team establishment phase members identified and allocated their primary roles. At this stage additional tasks can be identified that do not belong to any of the existing allocated roles. These additional tasks can be allocated as support roles to existing team members. Gordon (2002) agrees that from time to time new roles or tasks may emerge which should be adjusted to help achieve the team's goals. She suggests rotating these as support roles so that all team members gain the experience and also have an opportunity to make varied contributions to the tasks. Beatty and Barker-Scott (2004) assert that support roles are shared management roles and could include a:

- Timekeeper to help the team leader in tracking project milestones;
- Scribe to take notes of ideas and decisions in meetings and keep team members informed on decisions and outcomes;
- Facilitator to design meetings that will help the team move forward; and a
- Coach with good communication skills to act as a resource and assist the team by providing guidance, advice and managing team conflicts.

Therefore it is important to identify if the team is united with its team members, and whether team members feel they are supported by the organization. Important information and feedback received through these interrelationships helps the team to remain focused on their overall priorities and goals. The literature identified the emergence of additional responsibilities in this phase of the team life cycle. These support roles are considered to be shared management roles that can be rotated to provide team members with experience and assist in task completion.

2.2.3.3 Summary Phase 3 - Team Operation Rules

The phase of team operation rules is where team members organise themselves to accomplish team goals. At this stage team members set norms and protocols for team management and behaviour. Norms are shared beliefs, expectations and behaviours that are agreed and accepted by all team members to be followed through the duration of the project life cycle. Team effectiveness is characteristic of a good team structure based on well established and agreed upon norms that govern the way team members will work together. By setting procedures, protocols, contracts and agreements to handle and manage tasks, as well as roles and responsibilities, teams can minimise problems as the processes will reduce the chances of confusion, conflicts, time wasting, disappointments, task incompleteness and other stressful factors.

The purpose of setting norms is to clarify and schedule major management issues such as group decision-making and project planning and major behavioural issues such as members' treatment of one another, problem solving, conflict management and communication, as well as minor expectation issues such as starting meetings on time or simply checking in. Setting these standards can help build trust among team members, encourage openness and create an environment of satisfaction where the team members are focused and committed on achieving their common goal.

Therefore it is important for teams to consider and set rules or procedures for all major or trivial issues that could hinder their project and team from success. The literature suggests that team members need to set norms and standards for management and behavioural issues outlined in Table 2.5. Once these procedures are in place team member satisfaction can be achieved and the team can progress to the next phase of the team development process.

Table 2.5 - Norms And Standards - Team Operation Rules Phase

Criteria	Description	
Agreements & contracts	<ul style="list-style-type: none"> • Agreements on work ethics and follow up processes and confirm rules (Kipp & Kipp, 2000) • Set boundaries to negotiate expectations (Ancona, Kochan, Scully, Van Maanen & Westney, 2005) • Contracts promote responsibility, define contribution and quality expected (Luca & McMahon, 2005) • Norms and protocols for important aspects of working collectively (Beatty & Barker-Scott, 2004) 	
Management rules & processes	Task and management planning	<ul style="list-style-type: none"> • Identify key people involved to ensure information, processes and decisions are understood; set rules for meetings, timesheets, timelines, scheduling and monitoring (Beatty & Barker-Scott, 2004)
	Key people	<ul style="list-style-type: none"> • Set steps to manage tasks, roles, responsibilities, project plan and management procedures (Parrish, 2001)
	Task	<ul style="list-style-type: none"> • Set support roles for experience and varied contributions to tasks (Gordon, 2002)
	Roles	<ul style="list-style-type: none"> • 'Blogger' to record weekly progress, task schedules and contributions (Luca & McLoughlin, 2005)
	Responsibilities	<ul style="list-style-type: none"> • Members allocated to tasks (Wysocki, 2002)
	Collecting information & resources	<ul style="list-style-type: none"> • Management planning for tasks and roles (Ancona, Kochan, Scully, Van Maanen & Westney, 2005)
	Scheduling	<ul style="list-style-type: none"> • Members monitor own and each other's progress and evaluate their actions (Luca & McMahon, 2005)
	Timeline	<ul style="list-style-type: none"> • Coordinate and negotiate with team on deadlines (Ancona, Kochan, Scully, Van Maanen & Westney, 2005)
	Quality	
	Meetings	
Timesheets		
Decision making	Leadership	<ul style="list-style-type: none"> • Proper decision-making requires norms and protocols; decisions understood and accepted by all team members; by sharing leadership responsibilities team members become responsible team players (Beatty & Barker-Scott, 2004)
	Shared leadership	<ul style="list-style-type: none"> • Productive teams are committed and have more power in decision making process; group decision-making encourages synergy (Gordon, 2002) • Rotating leadership role to enable constant improvement (Hays, 2004) • Respect each other and allow each member to contribute to the team equally (Katzenbach & Smith, 1993) • Setting rules for decision-making (Ancona, Kochan, Scully, Van Maanen & Westney, 2005) • Set process for schedules and resource requirements (Wysocki, 2002)
		<ul style="list-style-type: none"> • Implement monitoring schedule to outlines tasks, time involved and outcomes expected (Wysocki, 2002)
		<ul style="list-style-type: none"> • Monitor progress and reflect on contributions (Luca & McLoughlin, 2005) • Seek feedback or test solutions (Beatty & Barker-Scott, 2004) • Monitor what is expected of them and how much they are willing to contribute (Luca & McMahon, 2005) • Setting task and maintenance function processes (Ancona, Kochan, Scully, Van Maanen & Westney, 2005)
Behaviour rules & boundaries	Monitoring and tracking	
	Acceptable behaviour	<ul style="list-style-type: none"> • Protocols to satisfy members' needs for voice and meaningful involvement (Beatty & Barker-Scott, 2004) • Team behaviour satisfaction important aspect in working collectively (Kipp & Kipp, 2000) • Set team values for expected treatment and behaviour (Romig, 1996) • Innovative team values set to accelerate team performance (Harris, 2003) • Set members limits for acceptable behaviour (Ancona, Kochan, Scully, Van Maanen & Westney, 2005)
	Communication	<ul style="list-style-type: none"> • Set communication procedures (Parrish, 2001) • Norms to communicate well together and encourage openness (Beatty & Barker-Scott, 2004) • Set norms for good communication (Katzenbach & Smith, 1993) • Communicate and challenge each-other positively to enhance learning (Hays, 2004) • Set communication process (Ancona, Kochan, Scully, Van Maanen & Westney, 2005) • Contracts helps enhancing their collaborative and communicative know-how (Luca & McLoughlin, 2005) • State opinions clearly, listen actively and provide helpful suggestions (Kipp & Kipp)
	Handling conflict	<ul style="list-style-type: none"> • Set guidelines to handling interpersonal conflicts (Beatty & Barker-Scott, 2004) • Set structure for resolving conflicts (Wysocki, 2002) • Setting rules for conflict management (Ancona, Kochan, Scully, Van Maanen & Westney, 2005)
	Problem solving	<ul style="list-style-type: none"> • Set steps for disruptive behaviour and problem solving, good communication norms to help in team problem solving (Beatty & Barker-Scott, 2004) • Teams produce when clear on problem solving process (Hays, 2004)
	Interrelationship & support	<ul style="list-style-type: none"> • Identify the external people involved in the project (Ancona, Kochan, Scully, Van Maanen & Westney, 2005) • Teams build interrelationships with team and support structure to help achieve team goals; identify reporting structure (Beatty & Barker-Scott, 2004) • Good communication to build strong interrelationships (Kipp & Kipp, 2000) • Set norms to express clearly, listen actively and provide helpful suggestions (Katzenbach & Smith, 1993)

2.2.4 Phase 4 - Ongoing Team Conduct

The fourth phase in the team development life cycle (Figure 2.9), considers the way teams conduct themselves in day-to-day achievements towards task completion, social behaviour and commitment. Beatty and Barker-Scott (2004, p. 17) affirm that, “real commitment to the team, whereby members are energized to make the team’s goals happen, develops from both a meaningful, relevant task (task strategies) and an enabling, respectful environment (social strategies)”.

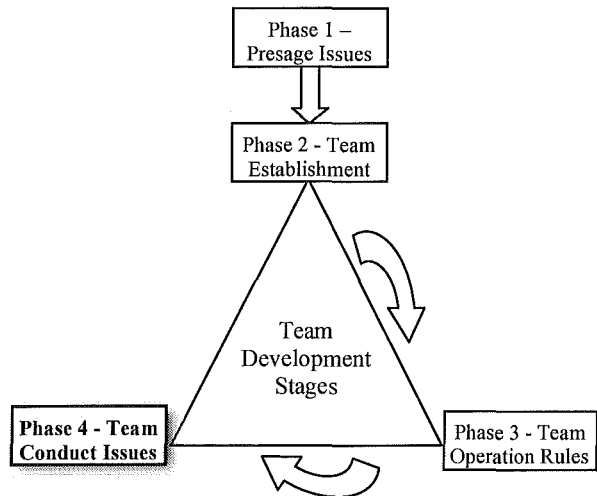


Figure 2.9. Ongoing team conduct phase.

A team enters the fourth phase when it has developed, matured and there is a high level of loyalty among team members. At this stage team members apply the rules, behaviours and processes that have been established and agreed upon in the previous phase. Therefore, the focus in this section is on attributes related to commitment, collaboration, problem solving, resolving conflict, interdependence, interpersonal relationships, as well as monitoring and evaluation, all of which were identified by many of the authors in the literature review (Figure 2.10).

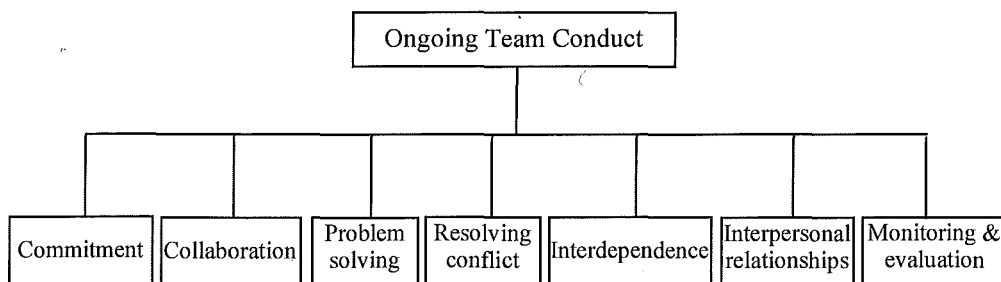


Figure 2.10. Conceptual framework of ongoing team conduct phase.

At the end of this section (2.2.4) a summary is shown for the ‘Ongoing Team Conduct Phase’ (Table 2.6), summarizing all the key issues discussed in this section.

Team roles and responsibilities have already been established earlier and it is now expected that members are able to work well together while being focused on the common goal. The ongoing team conduct phase is similar to Tuckman’s ‘performing’

stage where team members have developed good communication and collaboration skills, there is mutual acceptance among members, they respect and support each other, and, are jointly committed to achieving agreed tasks.

2.2.4.1 Commitment

Are team members in agreement over the collective team goal and are the individual goals the same as the team goals? Team members need to see the team overall purpose. Is there a positive attitude towards hard work? Are the individual team members and the collective team working together towards achieving the common goal (Kipp & Kipp, 2000)? According to Hays (2004) willingness and commitments to team objectives are essential factors because if the team members face conflict or failure at any stage then team willingness and commitments would help them continue together as a team.

In this phase team members need to be committed and keen to carry out the tasks, roles and responsibilities they have agreed upon to achieve teams goals. Team members also should be following the rules and procedures they have developed in a responsible manner. Team members' commitment to the set rules of behaviour and attitudes keeps them focused on the team goals and encourages better communication and collaboration. Nevertheless, on a regular basis team members need to stop and adopt reflective measures to evaluate behaviour and procedures they followed that blocked progress as well as processes that helped them advance (Beatty & Barker-Scott, 2004).

2.2.4.2 Collaboration

Successful teams produce when team members are aligned in their goal and to achieve that goal the processes they apply are also aligned. Alignment refers to "attitudes, beliefs, purpose, and expectations, as well as priorities and practices" (Hays, 2004, p. 43). Team members can work well together towards a mutual goal and act in trustworthy ways, also follow on agreed plan, processes and methodology when their goals and processes are aligned to achieve their purpose and expectations (Hays, 2004).

According to Furnham (1994) team members who are committed to their goals have: good collaborative skills; cooperative behaviour towards working on a problem and tasks as a team assignment; show a willingness to adjust to different academic tasks, people and methods; have the ability to tackle problems in an active manner; have the ability to see their overall goals; have the ability to seek improvements to problems and situations; and have the ability to live up to commitment. Collaboration emphasizes the

need for team members to be focused on common goals, communicate their needs openly and honestly to one another, take a problem solving approach and look for solutions to satisfy all team members, and treat one another with understanding and respect (Gordon, 2002). Beatty and Barker-Scott (2004) agree that members need to create “mutually satisfying solutions through win-win strategies” where members recognize the problem, its cause, and work together to create a solution that will satisfy all team members. Group performance and success depend on how well team members collaborate together. Team members need to promote each other effectively to achieve their goals by utilizing basic components such as positive interdependence, face-to-face promotive interaction, individual and group accountability, appropriate use of social skills, and group processing (Johnson & Johnson, 1999). Therefore team collaboration where there is mutual acceptance of one another will increase team synergy towards their common goal completion.

2.2.4.3 Problem Solving

In order to achieve high quality performance and productive teamwork, team members need to have good behaviour and attitude. They have clear communications, are honest, open, explicit, and able to accept defeat, which will facilitate new learning and changes. Team members are willing to give and expect honest feedback and respect each other's secrets regardless of differences. Team members find new and different ways to work around difficulties towards performance. Appropriate team collaboration can improve the quality of the overall project where team members welcome each other's new ideas and encourage group brainstorming. They share a common understanding of each other's roles and tasks, and also value the team leader's decision-making skills. Team members feel empowered to overcome difficulties and increase their creativity to produce challenging ideas and advance in the direction of teamwork success (Hays, 2004).

How do team members handle doubt? How well do team members resolve conflicts within the team? There should be a degree of openness and trust so that their problems do not get exposed. Also team members should have open communication between team members so that there is an equal exchange of ideas and yet the peace is maintained. Team members should be willing to put themselves forward for each other (Kipp & Kipp, 2000). Successful team members need to follow agreed upon rules in problem solving such as collecting information, exploring options, evaluating solutions

and effective decision making. Team members attempt to handle and avoid problems so it does not block the team from achieving their goal. Team members need to use skills such as tolerance and good communication, take the time to understand one another's point of view, contributions, show consideration to team members' ideas, trust and build on potential ideas to create synergetic solutions (Beatty & Barker-Scott, 2004).

2.2.4.4 Resolving Conflict

Gordon (2002) perceives conflict as a natural process that can occur in any team and at any stage. She asserts that successful collaboration involves trust and honesty, encouraging openness towards expressing individual attitudes and feelings, and exerting assertive and cooperative behaviour to be able to resolve conflicts and identify solutions together. Confronting and managing team members' conflicts, mistakes, and unanticipated consequences is a healthy process, because it will initiate members to explore, and come out with new ideas mutually workable solutions (Hays, 2004).

To stay focused on the task and avoid conflict team members must be clear on their joint aims, facts, assumptions and alternatives. In case of conflict involving data teams need to spend some time in defining and analysing the data requirements, in a structural conflict team members would need to slacken their pace or generally redefine their process. It is essential for teams to define the cause of conflict so it is not mistakenly considered a relationship conflict. A relationship conflict is a critical issue that can eventually hinder teams from progress (Beatty & Barker-Scott, 2004).

2.2.4.5 Interpersonal Relationships

Team bonding and team cohesiveness are essential factors because both present a meaning in team unity and cohesive culture. Bonding provides positive contributions to the team such as members' commitment to their time, knowledge, skills and energy to the team goals. The importance of cohesiveness is that it provides a sense of togetherness or community in the team, and it encourages the team members to remain together and brings a sense of belonging and relating to each other. In general these two factors produce good qualities in a team such as pride, purposefulness, confidence, enthusiasm, commitment, loyalty, and satisfaction (Cunningham & Gresso cited in Oswald, 1996). The emotional binding in a team is where team members trust each other, show respect for each other, care and express mutual concern, help and support when required (Katzenbach & Smith, 1993; Johnson & Johnson, 1999). Similarly,

Beatty and Barker-Scott (2004, p. 84) emphasized that “relationship and trust are built through acts of kindness, support and keeping our promise” as well as open and face-to-face communication, which can prevent interpersonal conflicts. Through out the project duration team members offer support, encouragement and reward each other as a part of team member culture (Hays, 2004).

Therefore, it is important for individuals to receive pleasure from their own successes and accomplishments, as it will help them to continue performing well. These strong interpersonal relationships can create a sense responsibility and ownership that upholds team unity.

2.2.4.6 Interdependence

“Positive interdependence results in promotive interaction which, in turn, promotes efforts to achieve, positive interpersonal relationships, and psychological health” (Johnson & Johnson, 1999, p. 201). Positive interdependence highlights the fact that for teams to be successful members have to realize that each member’s individual effort is required for group success and that each member has a unique contribution to make towards the team’s goals because of their allocated tasks, roles and responsibilities. Therefore it can be seen that if one member fails to accomplish an individual task or role the whole team is in strife, hence only the combined efforts and contributions of all team members can achieve team success.

Successful teams display interdependence among members and encourage each other to make their tasks achievable to reach the team’s goals. They help each other by exchanging ideas, resources and material, are willing to give each other feedback to enhance performance of their assigned tasks and roles, and also challenge each other’s logical thinking in order to produce a higher quality product. They work together to achieve the team’s goals, act in trustworthy ways, work towards mutual goals, towards keeping problems and stress levels at a minimum and exert extra effort towards high quality decision making which will improve interpersonal relationships and lead to a successful team (Johnson & Johnson, 1999).

Beatty and Barker-Scott (2004, p. 76) agree that positive interdependence among team members refers to patient communication and building synergy through members sharing “information and perspectives”, they respect, care and learn from each other, they explore one another’s skills and talents, and work together by building on team

members' ideas. Positive interdependence helps team members' focus on important issues such as improving relationships, task completion and mutually satisfying solutions. Finally, a positive attitude is the ability for team members to help and support each other by willingly providing assistance and coaching along with constructive feedback. This encourages team members to share learning and make improvements towards achievements on their individual tasks (Hays, 2004).

2.2.4.7 Monitoring And Evaluation

Successful team members are responsible individuals as they monitor and track each other's progress and follow-up on small or big issues to avoid any error in someone else's area that could damage their team performance. They hold each other accountable for shortfalls and actions. They share a common purpose, ownership, and problem-solving skills so they can invest their time towards the team's overall goal (Hays, 2004).

It was established in the first phase of the team development cycle that successful team members are aligned on team vision, mission and objectives. Then in the team operation rules phase, they agreed on norms and protocols to manage their ongoing tasks. Now in this phase they monitor and improve on each other's performances along with holding one another accountable for underperformance. According to Kipp & Kipp (2000) team members need to measure their daily performances. Regular monitoring and evaluations of how well the team members are working together will ensure a healthy team environment (Beatty & Barker-Scott, 2004). Similarly, Bateman suggests, "Team performance can best be evaluated if the team develops a model of excellence against which to measure its performance" (1990). Regular monitoring helps to evaluate, provide feedback and measure ongoing team performance. Reflection of task and social strategies previously identified weaknesses or negative issues followed by establishing methods to help resolve them. This process of reflection ensures that scheduled tasks are completed on time, promotes team openness, encourages positive feedback and creates synergy in the team to better team members' performance and achieve team overall goals (Beatty & Barker-Scott, 2004).

2.2.4.8 Summary of Phase 4 – Team Ongoing Conduct

Earlier in the team establishment phase the study identified team management practices (Figure 2.6) consisting of three key strategies such as task, social and commitment. Then task and social strategies were discussed in both the establishment and team

operation rules phases. Now the ongoing team conduct phase covers commitment strategies, which involve issues related to maintaining team stability and productivity.

The ongoing team conduct stage begins with team members' acceptance of agreed norms and standards. They are motivated to comply with their commitment to achieve their individual and team goals. The willingness and commitment to achieve common goals requires good skills in team collaboration and communication. The meaning of team collaboration as defined by the authors in the literature refers to abilities such as team members' focus on common goals, commitment to its purpose, ability to work well together, cooperative behaviour towards tasks and problem solving, willingness to adjust, openness and honesty in communication, and, trust, understanding and respect of one another.

The benefits of team member's collaboration is that it can help teams in problem solving, resolving conflicts, and improving relationships through professional skills such as communication and positive interdependence to improve team performance.

Team bonding and cohesiveness provides a sense of security, belonging and togetherness resulting in team member satisfaction so that they all feel responsible and accountable to achieve their goals through monitoring, evaluation and feedback to meet their deadlines.

The literature reviewed in this phase led to identifying important attributes needed for teamwork success (Table 2.6), such as the variety and willingness to accept differences among team members to improve the effectiveness of teamwork, also the ability of team members to work well together to achieve the common goal.

Table 2.6 - Key Attributes - Ongoing Team Conduct Phase

Attributes	Description
Commitment	<ul style="list-style-type: none"> Committed towards achieving common goal (Kipp & Kipp, 2000) Commitment to team objectives essential (Hays, 2004) Commitment to tasks, roles and responsibilities to achieve team goals encourages better communication and collaboration (Beatty & Barker-Scott, 2004)
Collaboration	<ul style="list-style-type: none"> Aligned goals and processes; shared attitudes, beliefs, purpose, expectations, trust (Hays, 2004) Cooperative behaviour to problem solving (Furnham, 1994) Promote one another effectively through positive interdependence to increase team synergy (Johnson & Johnson, 1999) Mutually satisfying solutions through win-win strategies (Beatty & Barker-Scott, 2004) Common goals, communicate honestly, understanding and respect (Gordon, 2002)
Problem solving	<ul style="list-style-type: none"> Collaboration empowers to overcome difficulties (Hays, 2004) Open communication, equal exchange of ideas to maintain peace (Kipp & Kipp, 2000) Tolerance, good communication, consideration, build on potential ideas to create synergetic solutions (Beatty & Barker-Scott, 2004)
Resolving conflict	<ul style="list-style-type: none"> Collaboration to resolve conflicts and identify solutions together (Gordon, 2002) Confronting and managing conflicts will initiate workable solutions (Hays, 2004) Members must be clear on joint aims, facts, assumptions and alternatives to avoid conflict (Beatty & Barker-Scott, 2004)
Interpersonal relationships	<ul style="list-style-type: none"> Team bonding and cohesiveness – sense of belonging and unity (Cunningham & Gresso cited in Oswald, 1996) Trust, respect, mutual concern, help and support (Katzenbach & Smith, 1993) Emotional binding through respect, care, trust and support (Johnson & Johnson, 1999) Relationship and trust through kindness, support, open communication (Beatty & Barker-Scott, 2004) Strong interpersonal relationship through support, encouragement and reward (Hays, 2004)
Interdependence	<ul style="list-style-type: none"> Each member's efforts and contributions required to achieve team's goals; work together towards mutual goals (Johnson & Johnson, 1999) Patient communication and building synergy through sharing (Beatty & Barker-Scott, 2004) Assist and support each other with constructive feedback (Hays, 2004)
Monitoring and evaluation	<ul style="list-style-type: none"> Monitor and track each other's progress; responsible and accountable (Hays, 2004) Measure daily performance (Kipp & Kipp, 2000) Regular monitoring and evaluation ensures a healthy team environment; reflection can promote team openness, encourage positive feedback and create synergy in the team (Beatty & Barker-Scott, 2004)

2.3 Summary

The literature review in chapter two identified the evolution of a team and its four phases of development. The study also explored and identified key attributes needed for each stage of the team development process. Summaries at the end of each of the phases of the team life cycle were used to synthesize the literature and derive key attributes needed for successful teamwork. These were outlined in the following order throughout this chapter.

- Table 2.2 - Presage or pre-grouping phase
- Table 2.4 - Team establishment phase
- Table 2.5 - Team operation rules phase
- Table 2.6 - Team ongoing conduct phase

Table 2.7 below represents the four phases of the team development life cycle and the essential attributes and team processes needed in each phase to ensure teamwork success.

Table 2.7 - Key Attributes In A Team Life Cycle

Phases	Attributes and criteria
Phase 1 Presage or pre-grouping	<ul style="list-style-type: none"> • Knowledge and experience • Training • Support • Resources • Assigning individuals to teams
Phase 2 Team establishment	<ul style="list-style-type: none"> • Team size • Project type • Goals • Skills • Roles • Commitment
Phase 3 Team operation rules	<ul style="list-style-type: none"> • Agreements and contracts • Task and management planning • Decision making • Evaluation and maintenance • Acceptable behaviour • Communication • Handling conflict • Problem solving • Interrelationship and support
Phase 4 Ongoing team conduct	<ul style="list-style-type: none"> • Commitment • Collaboration • Problem solving • Resolving conflict • Interpersonal relationships • Interdependence • Monitoring and evaluation

Often team members end up with conflicts that appear after the formation of a team, which can result in team break-ups, time wasting, poor performance and eventual team failure. The recognition and acceptance of individuals in a team will endorse a positive attitude towards team purpose. Based on the literature team success can be dependent on team members' commitment to team goals and strong team collaboration as well as the ability to adjust and follow norms and standards.

Finally, the study has identified successful attributes needed for teamwork success and processes in the team development stages. In addition, strong commitment of team members towards achieving team goals develops from having appropriate task management processes in place as well as creating a respectful social working environment. These attributes can encourage members to become responsible and accountable towards tasks and roles, create a sense of ownership and team synergy to increase productivity, and build interrelationships where they support each other to meet their commitments and achieve the team's common goals.

Based on the literature a survey was developed to assess existing project based teams in Multimedia/IT development environments. The following chapter describes the framework used to confirm the findings from this chapter. It also explains the process of developing and implementing the survey.

CHAPTER 3

METHODOLOGY

This chapter outlines the research methodology used to collect and analyse data. The chapter firstly presents the aims of this research, which are followed by an explanation of the process of developing and implementing a survey instrument. The demographics of the survey participants are next and finally a summary of this section.

3.1 Aims Of Research

The research aims were to initially establish through the review of literature, a team life cycle that represents the evolution of a team. Secondly, literature was reviewed and synthesized to identify key skills and team processes required in each stage of the team life cycle to enable success. Based on this synthesis a survey instrument was developed to assess processes implemented and attributes used for team success and satisfaction. Ultimately this study synthesized the information collected from the survey, with the analysis of the literature in order to make recommendations for promoting successful teamwork in multimedia development teams. Are components of the conceptual model of the team life cycle an indicator of team success?

3.2 Research Methodology

This study examines the 'Team Life Cycle Model' (Figure 2.1), through a case study of nine teams. The concept of the case study methodology is that it allows a problem, situation or event to be investigated with a holistic approach and is particularly appropriate for individual researchers (Bell, 2002; Burns, 1994). The study analyses data collected from a survey of nine teams in a Multimedia/IT environment.

The results from the case study were analysed for themes and patterns in order to make some recommendations for successful teamwork.

Whichever method of information gathering is selected, the aim is to obtain answers to the same questions from a large number of individuals to enable the researcher not only to describe but also to compare, to relate one characteristic to another and to demonstrate that certain features exist in certain categories. (Bell, 2002, p. 14)

According to Bell, a survey aims to “obtain information which can be analysed and patterns extracted and comparisons made” (2002, p. 13). A survey is advantageous when the “research goal is to describe the incidence or prevalence of a phenomenon or when it is to be predictive about certain outcomes” (Yin, 1994, p. 6). Authors such as Bell (2002), Yin (1994), Kumar (1996) and Burns (1994) affirm that although surveys can provide answers to exploratory questions such as what, where, when, how and why, the case study is the preferred strategy to enable intensive probing and analysing of information. Case studies are more focused and can be used to extract “variables, phenomena, processes and relationships that deserve more intensive investigation” (Burns, 1994, p. 313).

This case study organises the information into nine teams and analyses the data gathered from the respondents through the survey and open ended questions. To stay within reasonable limits of this research, the case study attempts to determine common patterns and relationships existing across the nine teams of Multimedia and IT.

3.3 Boundaries

Although the literature review delved thoroughly into the makeup of a team and essential attributes that could be considered for team success, the pilot study involved just nine teams. The teams comprised of an average of 2 to 4 students, which posed a minor setback in performing t-Tests to produce more reliable results. A t-Test requires at least ten members in each team to produce valid and accurate statistics. This being a pilot study the results sought were calculated into averages to portray matching patterns identified across the nine teams.

3.4 Development Of Survey

In designing the survey (Appendix A), valid and appropriate questions were sourced, identified and validated through the literature. These questions were implemented in an instrument to determine whether the criteria and attributes revealed through the literature (Table 2.7), were identified and considered by students in each of the four phases of the team life cycle in their teams. The questions were then integrated into a survey using the Microsoft Excel software.

Literature researched effective team building processes and attributes and determined suitable questions to identify successful team attributes implemented by teams in

Multimedia and IT development in higher education. The survey investigated how the teams were formed, how the team rules and procedures were set up, how the teams conducted themselves in their day to day issues, general team performance, and what they knew about successful teamwork as well as their awareness of the team development process. The questionnaire also investigated whether this study is beneficial to the Multimedia/IT students.

The questionnaire was designed according to the four stages of the team development process as derived from the literature (see Table 2.7). The literature also identified essential attributes in each of the four phases and these were considered in developing the questions. In addition the design considered Beatty and Barker-Scott's (2004) team assessment tools that included:

1. Team management practices that integrate three main concepts such as task, social and team commitment processes;
2. Problem solving; and
3. Conflict handling.

The questionnaire was divided into two parts. The first part of the questionnaire comprised of four multiple-choice sections in line with the four phases of team development. The first section contained six questions, the second contained seven questions, the third had eleven questions and the fourth section contained twenty-one questions. The second part of the questionnaire contained seven general short answer questions that allowed the participant to input information if applicable.

The following broad questions were identified in Table 2.7.

- Did the teams have any previous teaming skills?
- What process did they use in their team establishment?
- Awareness of the team development phases.
- Did the teams set rules or norms to manage tasks and behaviour to achieve their objectives?
- What methods used to sustain team stability and productivity?
- Their level of collaboration if any.
- Their problem solving and conflict handling procedures.

3.4.1 Multiple Choice Questions

The following tables demonstrate the layout of the questions in the multiple-choice range.

Table 3.1 - *Presage Or Pre-Grouping*

Section 1 - Presage		
1	I have previous experience in teamwork	
2	My team is supported by the lecturer in managing team affairs when needed.	
3	I have previous knowledge related to team development stages.	
4	All team members are skilled in what they do.	
5	Resources such as material and equipment are available to do my project.	
6	How did you join this team?	(Please circle appropriate) Friend -Skill - Role - Experience

The first section in the multiple choice questions (Table 3.1), aimed to identify presage or pre-grouping issues that were identified through the literature review (Table 2.7), such as:

- Students' previous knowledge in teaming skills and team development processes;
- Students' ability in identifying support structure to help with their difficulties;
- Whether they had been trained to identify material, resources and project needs; and
- Method of team selection.

Table 3.2 - *Team Establishment*

Section 2 - Establishment	
1	We considered the size of our team according to range of skills and abilities needed for the tasks
2	We determined project type and resources required at the team formation stage.
3	Personal goals were identified and matched with team goals.
4	My team is motivated to achieve our objectives.
5	My team members communicate well together
6	I am clear about my role in the project.
7	All members are committed to this team and its objectives.

The second section (Table 3.2), aimed to validate essential attributes (Table 2.7) required in the team establishment phase. Questions in this section sought to determine:

- The size of the teams being matched with the students' skills and abilities;
- Students in teams had considered their project and task needs when forming their teams;
- Clarification of personal goals and team goals, and what is expected from them for project completion;
- The level of commitment to the team objectives; and
- Level of appropriate balance of skills and abilities in the team.

Table 3.3 - *Team Operation Rules*

Section 3 - Norms	
1	My team agreed on processes for collection of information, exploring options, evaluating, and problem solving.
2	My team has defined processes for managing responsibilities and roles.
3	My team organized project management processes such as planning and time management.
4	Team leader's willingness to support team members.
5	My team has set rules for proper decision making.
6	All team members share in the decision making process.
7	Important rules have been set at an early stage.
8	Disruptive behaviour is blocking my team from achieving our goal.
9	My team established communication procedures and I express my views freely within my team.
10	Team members set guidelines to avoid conflict.
11	My team has established a good reporting structure.

The third section (Table 3.3), sought to gather information relating to the team operation rules phase. Questions asked in this section were identified through the literature (see Table 2.7), and aimed to identify:

- Team members had organized themselves to accomplish team goals;
- Team members had outlined procedures for task management issues such as data collection, time management, tasks, roles and responsibilities, scheduling, monitoring and tracking, quality of project, and reporting structure;
- They all contributed to the decision making processes;
- They had clarified and agreed on acceptable behaviour among team members to be followed for the duration of the project; and
- Existence of communication processes to manage meetings, problem solving and conflict handling.

Table 3.4 - *Ongoing Team Conduct*

Section 4 - Conduct	
1	All team members' abilities are used well to accomplish our goal.
2	All team members are committed and contribute equally.
3	How well are your technical abilities used?
4	My team applied project management processes such as tracking and evaluation.
5	My team builds on my suggestions and ideas.
6	My team members help and support each other in difficulties.
7	My team trusts and respects my point of view and contributions.
8	There is a high level of cooperation within my team and we work well together
9	Problem solving and decision making are very effective in our team.
10	Problem issues remain under the table.
11	My team is innovative.
12	My team thinks before jumping into conclusions.
13	My team members avoid conflict.
14	The quality of decision making in my team.
15	All team members treated me fairly.
16	All team members have a good relationship.
17	I am satisfied with the performance of my team.
18	I worked my full potential with my team.
19	My team follows on agreed rules for collection of information, exploring options, evaluating, decision making and problem solving.
20	How well has your group followed the planned team rules?
21	Our client is satisfied with the progress.

The last section in the multiple choice questions (Table 3.4), relate to the ongoing team conduct phase (see Table 2.7), and aimed to identify:

- Degree of commitment to achieve team goals;

- Willingness to accept differences that will increase team effectiveness;
- Ability of team members to work well together;
- Implementation of processes set earlier to manage tasks and behaviour;
- Cooperative behaviour towards tasks, problem solving and resolving conflict;
- Level of trust and respect among team members;
- Team bonding and cohesiveness as well as team member satisfaction;
- Team members' communication skills to resolve conflicts and improve team performance; and
- Team members responsible and accountable to achieve their goals through monitoring, evaluating and feedback.

3.4.2 Short Answer Questions

The second part of the questionnaire (Appendix A) was made up of seven short answer general questions (Table 3.5) including one open question to allow for student own comments. Participants were to answer only those questions applicable to them.

Table 3.5 - *General Questions*

Please answer the questions that you feel apply to you.	
1	How willing would you be to work with this team again?
2	What hindered your team from achieving success?
3	Based on your experience with your team, what attributes do you consider essential for teamwork success?
4	What are the best aspects or features of the team that helped your team performance?
5	What are the worst aspects or features of the team that caused the most problems?
6	Do you consider this study to be beneficial to you to improve teamwork success?
7	Additional comments on teamwork

This part aimed to obtain feedback about students' personal experiences in their current team project and also to draw some negative aspects encountered by them. The literature identified questions (see Table 2.7) that sought to gather information about:

- Successful attributes they believe, helped them to achieve team success;
- Factors that contributed to the team's lack of productivity;
- Their satisfaction with their team structure and performance;
- Their interest in gaining knowledge from this study; and
- Any additional comments they wanted to contribute about teamwork.

3.4.3 Team Performance Indicators

How to rate the team performance? Would this be based only on product quality and client satisfaction? In a commercial environment perhaps this criteria would suffice. However, in our context (higher education students in IMM), we consider that team satisfaction must also be included as an important element when determining team

performance. Team satisfaction was determined through student feedback. Product quality was determined through student feedback as well as tutor and client satisfaction. Tutors/lectures were consulted in calculating the quality of the final product. The scores for team success were determined and calculated based on team life cycle averages against the team performance average that includes product quality and team satisfaction averages. These have been illustrated through the use of tables and figures in the following chapter.

3.5 Likert Scale

The summative rating scale also known as the Likert scale (Table 3.6), used to measure the responses from the students was similar to that utilised by Parker and Kropp (1992) and, Beatty and Barker-Scott (2004), which they utilised in their team process observation instruments. This scale used five categories to show one respondent's view in relation to another (Kumar, 1996).

Table 3.6 - *Rating Tool*

Low		-		High
1	2	3	4	5

In the rating scale the number 1 represents the lowest end of the scale, 2 represents a below standard rating, 3 is an average or neutral score, 4 is above standard and 5 represents the highest rating on the scale. These values were transferred to a Microsoft Excel worksheet to calculate team responses.

3.6 Demographics

The survey instrument was implemented with students in the Interactive Multimedia and IT courses at West Coast College of TAFE, Western Australia. The rationale for selecting TAFE students as the target participants of the survey instrument was to gain feedback through their input towards what the students knew or believed are effective attributes needed for teamwork success, prior knowledge of effective teamwork strategies and team development processes as well as their implementation of these skills and processes.

3.7 Ethics Clearance

An application to undertake research involving human subjects was forwarded and approved by the Faculty Ethics Committee before implementing the survey questionnaire.

3.8 Survey Implementation

Following the formation of the questions to suit the research the questionnaire was prepared. Program managers of Multimedia and IT courses at West Coast College of TAFE were contacted in order to seek permission to conduct the survey with students who were involved in team based projects. The relevant teachers were assured of the anonymity of the survey and the confidentiality of all information as well as the duration required for its completion. Appointments were arranged at appropriate times when most of the students would be available to participate in the survey. The questionnaires were distributed to all students in the classrooms. The purpose of assessing each individual student instead of teams as a whole was that it would allow the students to be more open and also highlight strengths and weaknesses in the teams that could later be used in the analysis.

3.9 Summary

This chapter presented the methodology used in developing the survey questionnaire and case study. The process of distributing the information derived from the literature, into appropriate sections in the questionnaire was also explained. Following that the layout of the questions was provided and the target participants were identified. Finally, the process of implementing the survey was described. The following chapter presents the analysis of the data received through feedback from the Multimedia and IT students at West Coast College of TAFE, Western Australia.

CHAPTER 4

DATA ANALYSIS

In this chapter the survey questionnaire was analysed to measure teamwork success based on attributes implemented and end result of the team project, its completion and team satisfaction. The case study compared findings from the literature review (four stages of team development life cycle and essential attributes relevant in each stage) against collected data from the nine teams. Data extracted from the questionnaires was entered into an Excel worksheet to help support patterns and trends found across teams. These have been illustrated through the use of figures and tables. Finally, a summary of the findings is presented at the end of the chapter.

4.1 Analysis of the Questionnaire

When conducting the survey, students were initially presented with an overview of the research thesis, purpose and benefits of the survey for current and future students in higher education, as well as the nature of its confidentiality, before being handed out the forms. The aim of this explanation was to familiarize students with terminology used in the questionnaire, shed light on essential attributes of successful teamwork and team development processes, as well as to encourage openness and accuracy in students' responses. The overview aroused interest in the lecturers towards the study and consequently they offered the researcher to remain in the classrooms whilst students completed the survey questionnaires in case they had any queries or clarifications regarding the questions. During the survey session, students were motivated due to the overview provided at the beginning of the class and asked questions to enable them to provide accurate feedback to the survey. Thirty-three students in nine teams responded to the questions in the survey providing valuable data to confirm and validate the findings from the review of the literature conducted in Chapter Two. The following section examines the qualitative data extracted from a case study of nine teams in Multimedia and IT development, who participated in the survey. The analysis also includes essential teamwork attributes recommended by the students through their experience from working with their current teams.

4.1.1 Team 1

Team 1 showed a lack of knowledge in team development processes, as illustrated in Table 4.1. The team comprised of two members, while other teams in the same class were mainly made up of four members. These two team members encountered problems such as insufficient time for task completion because of the small team size. They had to share roles and responsibilities where they experienced difficulty in coping with the overload of project tasks as well as assignments in other units. They experienced problems due to poor communication and project management skills, and also did not set any rules for managing tasks.

Table 4.1 - *Attributes Derived From Team 1 (Multimedia Group)*

Attributes	Mean	Feedback from Team 1
Presage Phase		
Knowledge & experience	4.0	Members had previous experience with teams
Training	2.5	Lack of knowledge in teaming processes
Support	2.0	Lack of external support in teaming
Resources	3.0	
Team selection	3.5	Team selection based on experience, skills and roles
Team Establishment Phase		
Team size	2.5	Two members
Project type	2.0	Project type and needs not identified,
Goals	4.0	
Skills	3.0	Lacking skills to identify project needs
Roles	3.0	Roles allocated
Commitment	4.0	Good commitment
Team Operation Rules Phase		
Agreements & contracts	0	
Task & management planning	3.0	Problems with planning
Decision making	3.0	No decision making rules
Evaluation & maintenance	3.0	No rules set for data collection, exploration and evaluation
Acceptable behaviour	3.0	No rules for behaviour
Communication	3.0	One member complained of lack of communication
Handling conflict	3.0	No guidelines for conflict handling
Problem solving	2.5	No rules for problem solving
Interrelationship & support	2.5	
Team Ongoing Conduct Phase		
Commitment	3.0	Good commitment
Collaboration	4.0	Worked well together, good collaboration
Problem solving	3.0	
Resolving conflict	3.0	
Interpersonal relationships	4.0	Good relationship
Interdependence	2.0	Unable to work full potential due to work overload
Monitoring & evaluation	3.0	Difficulty with data collection, exploration, evaluation, decision making
Product Quality (client satisfaction and tutor mark)		
	2.5	Low quality product
Team Satisfaction	3.5	Prepared to work together again.
PERFORMANCE AVERAGE	3.0	Based on product quality and team satisfaction

This team completed their project with a low quality product (Product Quality = 2.5) and an unhappy client. The tutor's opinion also indicated this team was not successful in producing a good quality product and ensuring client satisfaction resulting in a low pass mark for the project.

However, the averages derived from the findings revealed that, although Team 1 scored a low of 2.5 in product quality due to poor knowledge in identifying project type and

needs, they obtained an overall Performance Average of 3.0 because they had a good relationship with each other. An analysis of their comments suggested that their commitment, collaboration and relationship led to high team satisfaction (3.5).

These students believed the following criteria were essential for teamwork success:

- Skills essential to work well together;
- Positive attitude, collaboration, good relationship, equality and respect; and
- Teamwork creates lasting relationships that carry on after the end of the project.

4.1.2 Team 2

Team 2 comprised of four team members (Table 4.2), who considered friendship, skills and experience when forming their team. The findings indicated this team lacked in setting rules for problem solving and handling conflict. It also showed that boundaries for acceptable behaviour were not set. This team defined their roles and goals yet they experienced difficulties with setting norms and rules for their operation phase, which resulted in diminished commitment and motivation.

Table 4.2 - *Attributes Derived From Team 2 (Multimedia Group)*

Attributes	Mean	Feedback from Team 2
Presage Phase		
Knowledge & experience	4.5	Members had previous experience in teamwork
Training	3.5	
Support	3.2	
Resources	3.0	
Team selection	4.0	Team selection based on friendship, skills and experience
Team Establishment Phase		
Team size	4.0	Team size of four
Project type	3.7	Identified project type and needs
Goals	3.0	Identified but not clear goals
Skills	3.5	Team members skills matched with project needs
Roles	3.0	Good leadership
Commitment	4.0	
Team Operation Rules Phase		
Agreements & contracts	0	
Task & management planning	3.0	Poor project planning
Decision making	3.5	Good leadership
Evaluation & maintenance	3.5	
Acceptable behaviour	2.5	No boundaries set for acceptable behaviour
Communication	4.5	
Handling conflict	3.2	
Problem solving	3.7	
Interrelationship & support	3.7	
Team Ongoing Conduct Phase		
Commitment	3.2	Drop in commitment level
Collaboration	3.7	Good teamwork
Problem solving	3.5	Difficulties in problem solving
Resolving conflict	2.5	Many conflicts
Interpersonal relationships	4.0	Good relationship
Interdependence	4.0	Shared responsibilities
Monitoring & evaluation	4.5	
Product Quality (client satisfaction and tutor mark)		
	3.5	Good quality product
Team Satisfaction	4.0	Team member satisfaction
PERFORMANCE AVERAGE	3.8	Based on product quality and team satisfaction

The feedback from the survey indicated this team experienced many conflicts through their team life cycle as indicated with an average of 2.5 in Table 4.2. However, an average of 4.0 indicated that they were able to pull their weight and work together as a team by sharing both, responsibilities as well as the leadership role. The opinion of this team provided insight of competency in effective teamwork as they determined at an early stage the skills and abilities required for project completion. Mostly, team success in timely project completion can be attributed to team members' previous participation in teamwork and good relationships within the team as indicated through an above

standard average of 4.5 in prior knowledge. This is evident from the feedback, which indicated the students had formed their team based on skills rather than friendship alone to achieve team goals. Additionally, all team members' were pleased and willing to work with this team again. This team presented an overall team Performance Average of 3.8. Tutor opinion indicated Team 2 had performed well with an above average product resulting in client satisfaction and a good pass mark.

These students believed the following criteria were essential for teamwork success:

- Ability to listen;
- Openness;
- Good communication; and
- Collaboration.

4.1.3 Team 3

Team 3 showed that they established their team with focus on their social interaction in the team selection process. The survey of this team (Table 4.3), revealed students were inexperienced with teamwork processes. Their initial team selection process was based on friendship rather than skills or roles. Although this team comprised of four members, two members were graphic designers, which possibly contributed to the team's low performance. It appeared they did not set any teamwork processes, which hindered the team from determining roles, tasks and responsibilities according to skills and abilities.

Table 4.3 - *Attributes Derived From Team 3 (Multimedia Group)*

Attributes	Mean	Feedback from Team 3
Presage Phase		
Knowledge & experience	3.5	Not all team members had previous experience with teamwork
Training	3.0	
Support	4.0	
Resources	3.0	
Team selection	3.0	Team selection based on friendship
Team Establishment Phase		
Team size	4.0	Team size of four
Project type	2.5	
Goals	3.0	Personal goals not aligned with team goals
Skills	3.7	Improper skill allocation
Roles	3.5	Doubling of roles. Unclear roles
Commitment	4.2	
Team Operation Rules Phase		
Agreements & contracts	0	
Task & management planning	3.0	Skipped task and management planning
Decision making	3.2	They did not set decision making procedures
Evaluation & maintenance	3.0	
Acceptable behaviour	3.0	They did not set behavioural issues
Communication	2.5	
Handling conflict	3.0	
Problem solving	2.2	
Interrelationship & support	2.7	
Team Ongoing Conduct Phase		
Commitment	3.0	Lack of motivation
Collaboration	2.5	
Problem solving	3.0	Disruptive behaviour
Resolving conflict	3.0	
Interpersonal relationships	2.5	Lack of respect. Poor communication
Interdependence	2.5	Lack of input
Monitoring & evaluation	2.5	They had difficulties with project needs
Product Quality (client satisfaction and tutor mark)		
	2.7	Below average
Team Satisfaction	3.0	Willing to work together again
PERFORMANCE AVERAGE	2.9	Based on product quality and team satisfaction

Personal goals and team overall goals were not determined clearly. The survey showed that skills and roles were not aligned appropriately with task needs resulting in members' low commitment and motivation towards project performance. The average of 2.5 for identifying project type and needs, suggested this team suffered setbacks in allocating tasks and roles according to project requirements.

Team members apparently lacked the ability to set rules and processes for task completion and acceptable behaviour, which consequently led to members being unable

to visualise the end product. Their disruptive behaviour blocked them from being enthusiastically involved with collection of information, exploring options, evaluating, decision making and problem solving. These problems prevented the team from submitting their project on time as indicated through their feedback. This team confirmed the willingness to work with the same group again even though they were not able to meet the assignment deadline. They presented lack of participation, knowledge and experience in teaming as well as the ability to identify project needs. According to the tutor this team produced a sub standard product indicated through an average score of 2.7 in the table, and were given a low mark because of an unsatisfied client and the team missing the submission date by six weeks.

These students believed the following criteria were essential for teamwork success:

- Effective project planning skills;
- Skills and abilities;
- Good communication;
- Strong commitment; and
- Collaboration.

4.1.4 Team 4

Team 4 comprised of four multinational students who were not able to apply any specific method to their team selection process (Table 4.4). They experienced language barriers where they presented difficulty in understanding each other or communicating well together, and were not able to seek or identify external support to help them manage their team issues and tasks as indicated through a below average score of 2.7. It appeared they lacked essential knowledge and experience in teaming processes where they could have gained skills in dealing with cultural differences.

Table 4.4 - *Attributes Derived From Team 4 (Multimedia Group)*

Attributes	Mean	Feedback from Team 4
Presage Phase		
Knowledge & experience	2.7	Lacking in teaming and communication skills
Training	2.2	Lacking skills in project planning and processes, communication and teaming
Support	2.7	Lack of external support
Resources	3.0	
Team selection	2.7	Team selection based on roles, skills and friends
Team Establishment Phase		
Team size	4.0	Team size of four - Multinational team
Project type	2.7	Project type not considered well
Goals	3.2	Team goals were not identified
Skills	3.0	Skills and abilities were not determined. Lack of technical skills
Roles	2.5	Roles are not clear
Commitment	3.2	Low motivation
Team Operation Rules Phase		
Agreements & contracts	0	
Task & management planning	2.5	Poor task and management planning
Decision making	3.2	Leadership problems. They did not set decision making procedures
Evaluation & maintenance	2.5	
Acceptable behaviour	2.7	No boundaries set for acceptable behaviour
Communication	2.5	Did not set processes for communication
Handling conflict	3.2	Did not set processes for resolving conflicts
Problem solving	3.0	Did not set processes for problem solving
Interrelationship & support	2.5	Did not identify external support
Team Ongoing Conduct Phase		
Commitment	3.0	Low motivation, members are not willing to put effort
Collaboration	3.0	Do not work well together. Language and communication difficulties
Problem solving	3.2	Unequal contribution
Resolving conflict	3.5	
Interpersonal relationships	3.5	Disruptive behaviour
Interdependence	3.2	Do not share or support each other
Monitoring & evaluation	2.2	
Product Quality (client satisfaction and tutor mark)		
	2.5	Low
Team Satisfaction	3.1	Willing to work together again
PERFORMANCE AVERAGE	2.8	Based on product quality and team satisfaction

Two members in the team who came from a similar cultural background seemed to be isolated from the rest of the team and that caused low motivation and commitment levels. Project requirements, goals and roles were not determined effectively due to lack of technical skills and personal abilities. Consequently, they were unable to set rules or agree on behavioural expectations and procedures for task management and project completion. These issues caused the team to become dysfunctional. The team members

believed that lack of personal abilities, technical and software skills caused the team to be unproductive.

Feedback indicated that the multinational members contributed new creative ideas to their project. In spite of this, their lack of technical and communication skills diminished these contributions. Furthermore, they were not able to work well as a group due to disruptive behaviour and conflicts within the team and a lack of equal contribution, which caused the team to score below average on productivity and ultimately miss the submission date for their project. The tutor awarded this team a low mark towards their product quality and felt that language and communication barriers would have contributed to their low performance.

These students believed that the following criteria were essential for teamwork success:

- Good leadership;
- Identification of goals;
- Good relationship;
- Strong commitment; and
- Good communication.

4.1.5 Team 5

Team 5 selected their team members on friendship (Table 4.5). They appeared to lack skills in project management processes. Insufficient experience in teaming issues resulted in their inability to determine project needs, which was demonstrated through a low average of 2.7. Perhaps this team could have done better if they had sought external support to point them in the right direction.

Table 4.5 - *Attributes Derived From Team 5 (Multimedia Group)*

Attributes	Mean	Feedback from Team 5
Presage Phase		
Knowledge & experience	2.7	Insufficient previous knowledge in teaming processes
Training	3.0	
Support	3.0	
Resources	3.0	
Team selection	2.5	
Team Establishment Phase		
Team size	4.0	Team size 4 members
Project type	2.7	
Goals	2.7	Goals not identified. No clear match between team goals and personal goals
Skills	3.0	Lack of leadership skills. Lack of technical skills and personal abilities
Roles	3.0	Unable to decide on roles
Commitment	2.9	Lack of commitment to team objectives
Team Operation Rules Phase		
Agreements & contracts	0	
Task & management planning	2.9	No project planning. Roles and responsibilities not defined
Decision making	2.9	Could not decide as a team
Evaluation & maintenance	3.0	Processes not set
Acceptable behaviour	2.8	Not setting behavioural issues
Communication	2.9	Unable to build on each other's ideas
Handling conflict	3.2	Poor planning
Problem solving	2.9	
Interrelationship & support	3.0	Good relationship identified as a result of previous friendship
Team Ongoing Conduct Phase		
Commitment	2.8	Lack of motivation
Collaboration	3.3	Not working well together, low level of collaboration
Problem solving	3.1	Too many problems and conflicts
Resolving conflict	2.9	Difficulties in managing problems
Interpersonal relationships	4.0	Continuous disruptive behaviour and disrespect
Interdependence	3.5	Do not contribute equally. Low level of contribution
Monitoring & evaluation	3.5	Any agreed processes were not followed
Product Quality (client satisfaction and tutor mark)	3.0	Standard quality
Team Satisfaction	3.0	Members willing to team up again for future
PERFORMANCE AVERAGE	3.0	Based on product quality and team satisfaction

The survey showed an average of 2.7 for their inability to set clear goals and manage their objectives. Although, they were friends, team members experienced disruptive behaviour that led to problems and inability to resolve conflicts in relation to project needs and tasks. According to team members they had a good interpersonal relationship but it was limited to their social circle and not within their teamwork environment. They believed that members were not committed enough to the team because some members would not make the effort to attend class to work on the project, which was attributed to poor decision making and leadership skills in the team.

From the above analysis it appeared that this team lacked teaming skills to help them with setting rules and processes to manage tasks and acceptable behaviour within the team. In addition, they were not able to define roles and responsibilities, which caused confusion, conflicts and the inability to work well together as a team. Members were not committed or responsible for their actions resulting in a general lack of direction. However the analysis of the short answer questions indicated that due to prior friendship, this team was able to work through their problems and achieve project completion as well as team satisfaction. This was also indicated through the willingness of all members to work together again in future team based projects. Finally, tutor feedback suggested this team appeared to be average with an end product of standard quality.

These students believed the following criteria were essential for teamwork success:

- Good communication;
- Cooperation; and
- Brainstorming.

4.1.6 Team 6

Team 6 comprised of three students who had worked in teams previously (Table 4.6). This team came together based on roles required for the project. The team members were moderately committed to team goals and purpose yet they were unable to set any rules or procedures towards tasks and behaviour in the team operation phase. Based on the average score of 2.0 on task and management planning as well as the average of 2.6 on decision making, it appeared that this team struggled with many conflicts and reaching consensus on decisions.

Table 4.6 - *Attributes Derived From Team 6 (IT Group)*

Attributes	Mean	Feedback from Team 6
Presage Phase		
Knowledge & experience	4.6	Previous teamwork experience
Training	2.3	
Support	3.3	
Resources	3.0	
Team selection	3.6	Team selection based on roles
Team Establishment Phase		
Team size	4.0	Team of three members
Project type	2.6	Project type and needs were not identified clearly
Goals	3.0	No clear goals
Skills	3.6	
Roles	4.0	
Commitment	3.6	Members are committed
Team Operation Rules Phase		
Agreements & contracts	0	
Task & management planning	2.0	Late project process
Decision making	2.6	No rules where set
Evaluation & maintenance	3.0	
Acceptable behaviour	2.3	Not able to reach agreements on a subject
Communication	4.3	
Handling conflict	3.0	No rules for managing conflict
Problem solving	2.6	No rules for problem solving
Interrelationship & support	3.6	Do not share ideas
Team Ongoing Conduct Phase		
Commitment	2.3	Lack of commitment
Collaboration	3.6	
Problem solving	3.3	Too many problems
Resolving conflict	3.0	Many conflicts
Interpersonal relationships	4.0	
Interdependence	3.3	Not treated fairly
Monitoring & evaluation	3.3	
Product Quality (client satisfaction and tutor mark)		
	2.9	Task completed on time with low quality product
Team Satisfaction		
	3.3	
PERFORMANCE AVERAGE	3.1	Based on product quality and team satisfaction

Increasing team problems and low motivation levels contributed towards students missing classes and low productivity. However, the survey indicated that this team presented good collaboration, interrelationships and good communication, as well as proper team construction, all of which could have assisted them to complete their tasks.

Finally, this team produced a low quality product due to the delay in planning project processes and lack of setting rules in the third phase of their team life cycle. Nevertheless, they were willing to work with the same group again.

These students believed the following criteria were essential for teamwork success:

- Communication;
- Cooperation;
- Participation; and
- Ability to set clear goals and roles.

4.1.7 Team 7

Team 7 considered important teaming issues in the team establishment phase (Table 4.7), such as identifying project needs followed by allocating tasks and roles according to members' skills and abilities. This team was made up of four mature age students. It appeared that their previous experience helped them to identify personal goals and team goals.

Table 4.7 - *Attributes Derived From Team 7 (IT Group)*

Attributes	Mean	Feedback from Team 7
Presage Phase		
Knowledge & experience	4.5	All team members had previous teamwork experience
Training	3.2	
Support	3.7	
Resources	3.0	
Team selection	5.0	Team selection based on friendship, roles to meet project needs
Team Establishment Phase		
Team size	5.0	Team of 4 members
Project type	3.5	Identified project needs
Goals	4.2	Identified team goals
Skills	3.2	Roles defined according to skills
Roles	3.5	Well-defined roles. Leader, designer, explorer, team worker
Commitment	3.0	
Team Operation Rules Phase		
Agreements & contracts	0	
Task & management planning	3.7	Applied task and management planning
Decision Making	3.2	Some decision making difficulty
Evaluation & maintenance	3.5	
Acceptable behaviour	2.7	
Communication	3.2	Have good communication procedures
Handling conflict	3.7	Good conflict handling
Problem solving	2.9	
Interrelationship & support	3.5	Good interrelationship and support through shared roles and responsibilities
Team Ongoing Conduct Phase		
Commitment	3.0	Strong commitment
Collaboration	3.5	Good collaboration
Problem solving	3.5	
Resolving conflict	4.0	Responsible team members
Interpersonal relationships	4.7	Respected each other
Interdependence	3.5	Good leadership. Applied their skills well
Monitoring & evaluation	3.2	
Product Quality (client satisfaction and tutor mark)		
	4.0	
Team Satisfaction	3.1	Willing to work with same team again
PERFORMANCE AVERAGE	3.6	Based on product quality and team satisfaction

Good communication and strong commitment was noted throughout the team life cycle in this team, presenting an average score of 3.0 each. Team members believed that the ability to share ideas and supporting each other was the reason for their success. It appeared that the team was able to deal with conflict and solve problems effectively, which strengthened their relationship, demonstrated through an above average score of 4.7, and increased team performance.

Members in this team, were able to identify essential team roles such as a leader, designer, explorer and team worker that have been identified by authors in the literature review such as Belbin (2000), Stevens (1998) and Tyson (1989). This combination of

team roles, which includes complementary skills and abilities to meet task needs, confirmed that they had previous teamwork experience. Moreover, team members were able to determine tasks needs, skills, roles, goals and responsibilities at the presage phase of the team life cycle. Their ability to follow agreed upon responsibilities, commitment and collaboration helped them to achieve team objectives with a satisfactory product and a happy team.

These students believed the following criteria were essential for teamwork success:

- A good team leader;
- Good communication skills;
- Strong commitment to team objectives;
- Confident members; and
- Positive thinking.

4.1.8 Team 8

Team 8 was the smallest group in the IT class and consisted of two members only (Table 4.8). This team experienced difficulties due to lack of professional abilities. They were not able to identify and decide on project needs and goals that could help them for task performance and project completion. One team member appeared to be moderately committed to task completion but that commitment did not last, as they were not able to communicate at any level because of the lack of skills to set and agree on team processes. The other member showed lack of commitment to his role, he presented lack of skills and ability to identify with the team purpose. This resulted in low motivation and low participation. Consequently, team members became irresponsible, unproductive and unable to collaborate well together

Table 4.8 - *Attributes Derived From Team 8 (IT Group)*

Attributes	Mean	Feedback from Team 8
Presage Phase		
Knowledge & experience	4.0	
Training	2.0	Poor personal abilities
Support	3.0	
Resources	3.0	
Team selection	5.0	Team selection based on roles
Team Establishment Phase		
Team size	2.5	Team of 2 members only
Project type	2.5	Did not know how to go about the project
Goals	2.5	No goal setting
Skills	4.5	Good technical skills
Roles	3.5	
Commitment	2.0	Lack of motivation
Team Operation Rules Phase		
Agreements & contracts	0	
Task & management planning	2.5	Did not apply any planning
Decision making	2.0	No decision making
Evaluation & maintenance	2.5	Weak technical skills
Acceptable behaviour	2.0	Not set
Communication	2.5	No communication
Handling conflict	2.5	Not set
Problem solving	2.5	Not set
Interrelationship & support	3.0	
Team Ongoing Conduct Phase		
Commitment	2.5	No commitment
Collaboration	2.5	Not willing to participate
Problem solving	3.0	
Resolving conflict	3.0	
Interpersonal relationships	2.5	No respect. Disruptive behaviour. Good relationships as friend only
Interdependence	3.5	Did not support each other
Monitoring & evaluation	3.0	
Product Quality (client satisfaction and tutor mark)		
	2.8	Low quality product
Team Satisfaction	2.5	Team member satisfaction nil
PERFORMANCE AVERAGE	2.7	Based on product quality and team satisfaction

Team members experienced constant disruptive behaviour, which blocked their progress resulting in a low quality product. Perhaps the inadequate teaming skills caused undue pressure on members that contributed to the overall low average in team performance. Moreover, the survey revealed that there was discontentment in the team, demonstrated

through lack of respect and low participation with an indication that team members were not inclined to work together again. This team received a low mark for their product.

These students believed the following criteria were essential for teamwork success:

- Communication;
- Willing participation;
- Motivation;
- Respect; and
- Sharing and caring.

4.1.9 Team 9

Team 9 comprised of six students who had previous teamwork experience yet they encountered difficulties (Table 4.9). One of the reasons for their hardship, presented by the students, was that the teacher randomly assigned six students to this team. Statements from the students in this team also indicated that they lacked support from the facilitators towards proper team structure.

Table 4.9 - *Attributes Derived From Team 9 (IT Group)*

Attributes	Mean	Feedback from Team 9
Presage Phase		
Knowledge & experience	4.5	Team had previous experience
Training	2.3	Lacking skills in allocating roles and responsibilities
Support	2.5	Need for organizational support
Resources	3.0	
Team selection	2.8	Teacher randomly selected six students to form a team
Team Establishment Phase		
Team size	2.5	Team of six members
Project type	2.8	Unable to determine project needs
Goals	3.0	Goals not been set
Skills	3.6	
Roles	2.4	No specific roles, causing confusion
Commitment	2.5	Were not committed
Team Operation Rules Phase		
Agreements & contracts	0	
Task & management planning	2.3	Not organised
Decision making	2.8	Did not know what is needed to be done
Evaluation & maintenance	2.3	
Acceptable behaviour	3.3	Lack of norms for disciplined behaviour
Communication	2.8	Unable to communicate with each other properly, lost respect
Handling conflict	3.0	Not set
Problem solving	3.0	Not set
Interrelationship & support	3.0	Not identified
Team Ongoing Conduct Phase		
Commitment	3.0	No commitment
Collaboration	3.0	Not able to function as a team
Problem solving	3.3	Not able to solve problems
Resolving conflict	2.5	Too many conflicts
Interpersonal relationships	3.0	Bad relationships. Disruptive behaviour
Interdependence	2.8	No roles to contribute to.
Monitoring & evaluation	2.5	
Product Quality (client satisfaction and tutor mark)		
	3.0	Late submission
Team Satisfaction	2.8	
PERFORMANCE AVERAGE	2.9	Based on product quality and team satisfaction

The survey revealed that this team was unable to identify project needs and confused as to what they needed to do. This was demonstrated through an average score of 2.8 derived from the analysis. Furthermore, they lacked skills in allocating roles and responsibilities where members did not have specific roles that they could commit to. In addition they lacked the abilities in setting rules to manage their tasks and behaviour. This led to time being wasted on conflicts, team members losing respect for each other, and consequently unable to function as a team.

Although all members had previous experience in teamwork, yet they lacked effective teamwork skills. The initial team make up suggested an imbalance of roles and goals

where members were confused as to their purpose in the team. Consequently, the team experienced difficulties in participating equally and completing their tasks. This resulted in missing project deadline and an unsatisfied client. The survey indicated that members in this team were not willing to work with each other in a team again due to continuous arguments and disruptive behaviour. This team received a low mark due to a low quality product and penalty for late submission.

These students believed the following criteria were essential for teamwork success:

- Time management;
- Organization support;
- Defining roles;
- Communication;
- Effective planning;
- Clear goal setting; and
- Teaming skills.

4.2 Analysis Of Data

Benefits have been derived from the questionnaires as the results offered a great deal of insight into students' level of awareness and the need for essential attributes to be addressed during the team formation processes. The data analysis also revealed that Multimedia/IT students who worked in team based environments previously and gained some experience performed better in teams in comparison to teams of students who lacked essential teaming skills.

The multiple choice and short answer questions in the survey were divided into four sections that represented the four phases of the team development process. The following analysis presents means derived from the case study for these four phases of the team life cycle and then discusses the teams in each phase. Even though it is accepted that the statistical results derived from these are not robust (due to the small sample), they do give an indicative pattern that ties in with the student/tutor comments and the final quality of the product.

Table 4.10 - *Pilot Study Indicators*

Team Life Cycle Model	Teams								
Phases	1	2	3	4	5	6	7	8	9
<i>Presage</i>	3.0	3.6	3.3	2.7	2.8	3.4	3.9	3.4	3.0
<i>Team establishment</i>	3.1	3.5	3.4	3.1	3.1	3.5	3.7	2.9	2.8
<i>Team operation rules</i>	2.6	3.1	2.5	2.5	2.6	2.6	2.9	2.2	2.5
<i>Team ongoing conduct</i>	3.1	3.6	2.7	3.1	3.3	3.3	3.6	2.9	2.9
Life cycle average	2.9	3.5	3.0	2.8	3.0	3.2	3.5	2.8	2.8
<i>Product quality</i>	2.5	3.5	2.7	2.5	3.0	2.9	4.0	2.8	3.0
<i>Team satisfaction</i>	3.5	4.0	3.0	3.1	3.0	3.3	3.1	2.5	2.8
Performance average	3.0	3.8	2.9	2.8	3.0	3.1	3.6	2.7	2.9

The nine Multimedia and IT teams were rated according to the implementation of the effective attributes (Table 4.10) within the components of the team life cycle model (Table 2.1).

The analysis of the nine teams showed that although some teams performed better than others, yet no team performed exceptionally well. It appeared that the lack of teamwork skills could have contributed to their inability to identify and implement effective teaming processes. The following section analyses each phase of the team life cycle according to how each team performed.

4.2.1 Phase 1 - Presage

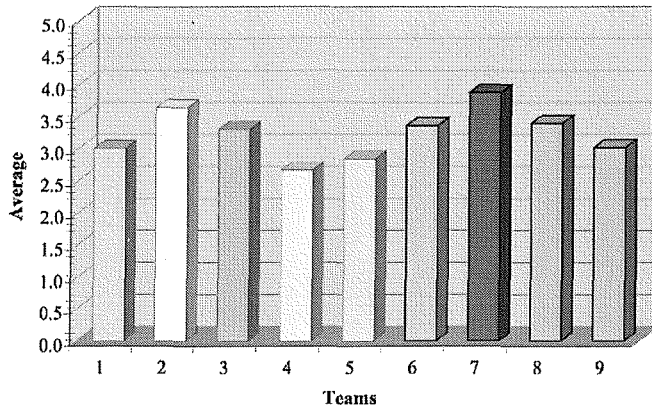


Figure 4.1: Average results for phase 1 - Presage

Teams 2 and 7 showed the highest average score in phase 1 (Table 4.1), which is aligned with previous knowledge in teamwork. Both teams had four members and their team selection process was based on skills that were needed to meet project needs, as well as friendship.

Team 8 was formed based on roles needed for task completion, yet they presented lack of personal abilities. Team 9 was formed through teacher intervention and consisted of six members, in spite of that they experienced difficulties in roles and task allocation. Team 6 was formed based on friendship and presented a lack of essential skills in teaming processes and professional abilities.

Teams 1, 4 and 5 showed the lowest averages in this phase. Team 1 appeared to lack adequate skills to complete the project in a satisfactory manner, which affected the quality of the final product. Team 5 based their team formation on friendship and presented insufficient knowledge in teaming processes. The outcome of the lack of teaming skills was noted in subsequent phases of their team life cycle. Team 4 comprised of multinational members who needed guidance so they could select members based on roles and skills needed for the project. It seemed they were disadvantaged due to language barriers that resulted in communication problems. In addition students were not assigned to teams through any specific teaming process.

4.2.2 Phase 2 – Team Establishment

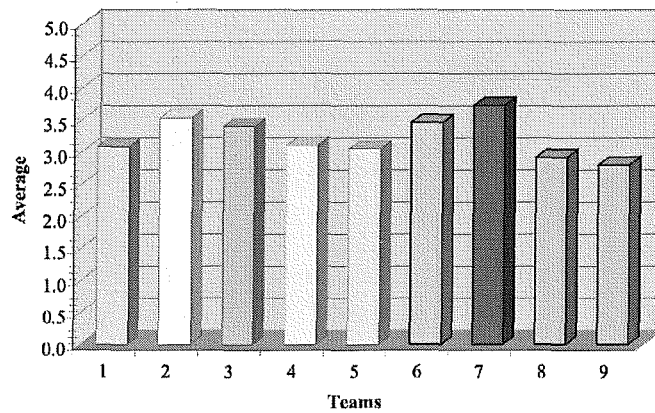


Figure 4.2: Average results for phase 2 – Team Establishment

Team 7 achieved the highest average of 3.7 (Figure 4.2), and followed a team structure similar to that identified in the literature. They determined their roles and skills according to project needs and appeared to have considered roles defined in Belbin's (1981) team role model (Table 2.3). Team members appeared to have identified the four phases of a team life cycle and the attributes required in each phase. Team 2 scored the second highest on the scale. They showed good teamwork skills and abilities in identifying project type and needs leading them to be focused and clear on team goals.

Teams 1, 4, 5, 8 and 9 showed the lowest average scores, they experienced difficulties with identifying project needs, goals and distribution of tasks and roles in the establishment phase of their team life cycle.

4.2.3 Phase 3 – Team Operation Rules

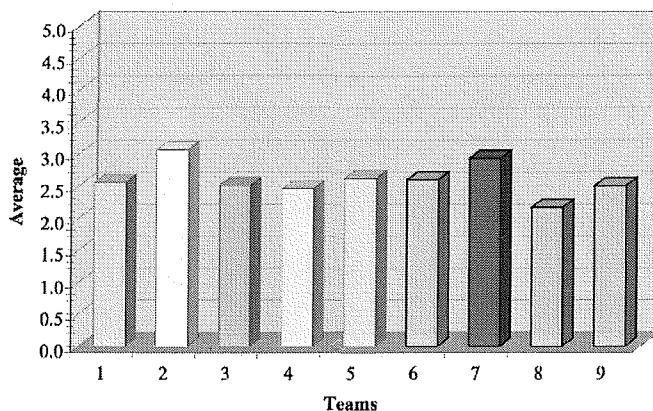


Figure 4.3: Average results for phase 3 – Team Operation Rules

Team 2 was the only team with an average score of 3.1 in this phase (Figure 4.3). They were able to work smoothly in their final phase of production through setting rules of operation, especially communication procedures. Team 7 showed the second best average score, they were able to set procedures for task and management planning, and handling conflicts the result of which was seen in the final phase where they were able to deal with conflicts effectively.

The rest of the teams in this phase scored below average and experienced difficulties in setting rules and processes for task and behaviour management during the operation phase. Team 4 was made up of students from diverse cultural backgrounds. This team was disadvantaged due to language and communication barriers that hindered their progress. Team 8 achieved the lowest average in this phase because of bad relationships among team members.

4.2.4 Phase 4 – Team Ongoing Conduct

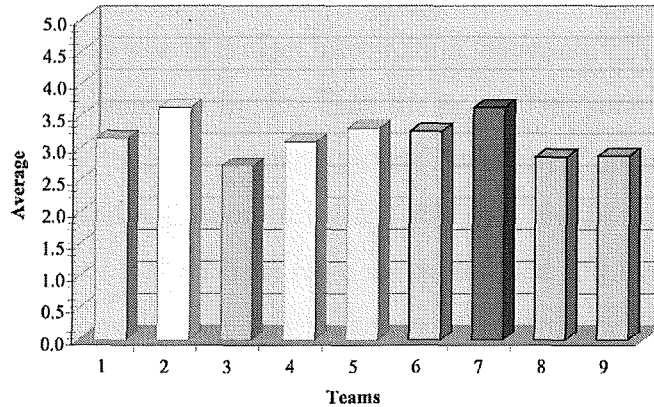


Figure 4.4: Average results for phase 4 – Team Ongoing Conduct

Teams 2 and 7 achieved the highest average score of 3.6 in this phase (Figure 4.4). Both teams achieved project success and client satisfaction. They showed good teamwork skills and willingness to continue together in the future team based projects. Their success and high scores refer back to their team construction and establishment. Furthermore, they presented good collaboration, interrelationships and commitment in the final phase.

Teams 1 and 4 presented adequate commitment to their project. These teams struggled in the earlier phases, nevertheless, they improved significantly in this phase due to the interpersonal relationships that helped them manage their problems and conflicts. Team 5 performed well in this phase due to team members' collaboration and interrelationships, which helped them to complete their project and achieve a middling score in this phase.

Teams 3, 8 and 9 showed the lowest averages in this phase. Team 8 and 9 presented similar weaknesses through their team life cycle such as the inability to plan for managing the project, defining roles, unclear goals and disruptive behaviour that resulted in lack of motivation towards project success. Both teams showed low average scores in the team establishment and operation rules phases. Team 3 experienced difficulties in managing tasks and responsibilities as well as setting norms and procedures, all of which contributed towards disruptive behaviour, low motivation and lack of participation.

4.3 Analysis Of Team Life Cycle As An Indicator Of Team Success

The aim of the survey was to collect information that could be analysed to help discover indicators of team success within the team life cycle. This section compares patterns and themes identified by considering team structure, interpersonal relationships, professional skills and definition of roles. Table 4.11 shows the teams sorted by ‘Team Life cycle’ average i.e. the Likert scale scores totalled and averaged to a single score. These scores are compared against the teams ‘Performance Average’. Note the small numbers being used, did not allow for valid and reliable statistical inference tests such as correlation coefficient and t-tests.

Table 4.11 - *Team Success (Sorted By “Team Life Cycle” Average Scale)*

Life Cycle Average (Highest to Lowest)	Team Attributes	
	Performance average	Team number
3.5	3.8	2
3.5	3.6	7
3.2	3.1	6
3.0	3.0	5
3.0	2.9	3
2.9	3.0	1
2.8	2.9	9
2.8	2.8	4
2.8	2.7	8

The highest performing teams in this analysis were 2 and 7 who presented good presage and team establishment phase attributes where both teams implemented a good team structure with roles, tasks and responsibilities that were defined according to project needs. Both these teams comprised of four members each who had previous knowledge and experience in teamwork that enabled them to effectively share roles and responsibilities. In addition, they defined their goals and hence were able to focus on team objectives to complete their project. Attributes found here that were consistent with the literature included experience in teamwork, ability to identify project type and needs, personal and team goals, strong commitment to team goals, shared roles and responsibilities, as well as good communication skills.

Although, both teams presented effective attributes and strong commitment throughout their team life cycle, their team selection process appeared to contribute to their performance average. Team 2 based their team selection on friendship and skills whereas Team 7 formed their team on friendship and roles. However, they both presented good collaboration skills in their final phase. This was supported by students’ comments made during the survey session and aligned with Hays (2004) and Tuckman

(1965) who affirm that a good team structure where objectives are established to meet project needs can help create interdependence and increase productivity.

Teams 5 and 6 obtained average scores in their "Team Life Cycle" averages and indicated good interpersonal relationships. Both these teams based their team selection on friendship and it appeared that in spite of their struggles in management and planning, their interpersonal relationships helped them to bond, work well together and thus increase their productivity. This was supported by comments made by students during the survey session and aligned with authors such as Johnson and Johnson (1999), Katzenbach and Smith (1993), and, Beatty and Barker-Scott (2004) who suggest that bonding and cohesiveness are essential factors because they present a meaning in team unity.

Teams 4, 8 and 9 showed below average results in their "Team Life Cycle" averages, which was attributed to a lack of professional skills. For example, Team 4 consisted of multi national members with language barriers and communication difficulties. Team 8 experienced poor team relationships, possibly caused by their inability to communicate effectively. Similarly Team 9 students seemed unable to communicate with each other properly and experienced conflicts with decisions resulting in confusion, frustration and loss of respect. Team 3 followed a similar pattern as they too experienced difficulties in communicating information related to team objectives and setting acceptable behaviours. This was prominent in members' inability towards problem solving and mutually understanding individual viewpoints. Consequently, they were unable to work well together which could have contributed to unnecessary setbacks. However, this team was able to produce an average product due to being advantaged with an extension of six weeks to complete their project and hence raise their team life cycle average. The pattern here indicates that all these teams presented lack of communication, conflict handling problems, unable to agree on rules and processes, lack of respect and unwilling participation, resulting in low motivation and poor performance. This was supported by comments made by students during the survey session and aligned with Adair (1986) who believes that a successful team is made up of members with a balance of technical skills and personal abilities along with commitment and personal desire.

Team 4 and 8 appeared to have problems with defining specific roles according to project tasks and needs. Team 9 was a large team with six team members who presented an imbalance of roles and responsibilities. They seemed unable to perform due to lack

of setting task management and behavioural procedures in the operation rules phase. Similarly Team 8 experienced problems with defining specific roles according to project tasks and needs. The pattern here is the lack of clearly defined roles, which contributed towards the low team average and poor results. This was supported by comments made by students and aligned with Belbin (1997), Kipp and Kipp (2000), Parrish (2001), and Furnham (1994) who suggest that a successful team has members with roles that are clearly defined and best suited to their abilities.

From the above analysis it appears that successful teams in this case study presented most of the essential attributes identified through the literature in Chapter Two. The literature suggested that strong commitment to team goals, collaboration and implementing norms and procedures, could encourage team synergy to increase productivity and help achieve team goals. Finally, it appears Teams 2 and 7 contained competent members in their teams where their skills and abilities were used effectively and able to create a sense of ownership and synergy to enable teamwork success.

What lessons did students learn from their teamwork experience in their current projects? Figure 4.5 below outlines the most common attributes recommended by students as being significant for team success.

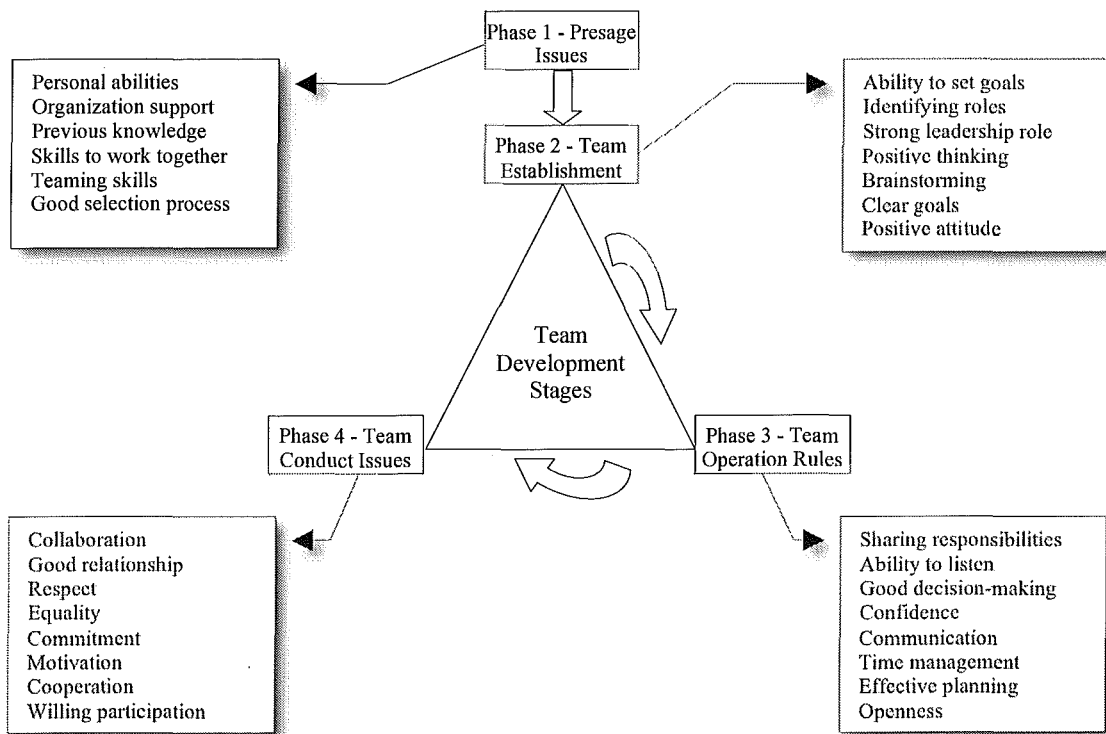


Figure 4.5. Attributes recommended by students.

Teams in the case study were able to identify essential attributes that could have contributed positively to their team success and project quality. For example, Team 3 showed the lowest mean average in the final phase of their team life cycle because they were not able to identify personal and team goals, which resulted in unequal participation towards the project objectives. Towards the end of the project they realised that if they had identified their team goals and aligned them with their personal goals they could have been more focused and enhanced their team performance.

The following chapter presents a conclusion and synthesis of information derived from the literature and survey analysis.

CHAPTER 5

SUMMARY AND CONCLUSIONS

Conclusions drawn in this chapter are based on the summary of the literature and the results derived from the survey. The chapter starts by re-stating the aims of this study. This is followed by a summary of the team life cycle, which leads to the findings that include a synthesis of the survey and literature. The limitations are presented with implications for further research, and ends with a conclusion.

5.1 Summary of Aims

The aim of this study was to identify a team life cycle and essential attributes required in each phase for successful teamwork. This model was then used to create a survey for a group of higher education multimedia/IT students to determine whether skills and team processes identified in the team life cycle model (Figure 2.1) were indicators of team success.

5.2 Summary Of Team Life Cycle

Extensive research conducted worldwide has found that successful teams are productive because team members are equally involved in all processes hence becoming more responsible for their performance. Teams of Multimedia/IT development environments in higher education, with good professional skills form better team members because they possess the ability to work collaboratively towards the team's overall goals. The aim of this study was to establish a team life cycle model and identify key attributes relative to each phase of the model to help promote successful teamwork.

The literature review revealed that there were four key stages in the life cycle of a team (Table 2.1), a preliminary phase where the team forms, a second phase where team members struggle to adjust to tasks and environment, a third phase where team members are beginning to accept each other and set norms, and finally a performing phase where team members follow their set procedures to achieve common goals.

Recognizing the team life cycle is critical to teamwork success and should be addressed carefully.

The study revealed that team members are not evaluated and assessed before forming into teams. It is assumed that all members have the required attributes and abilities for successful teamwork. In addition the study showed imbalance in team size and teaming procedures in both classes and that the team selection processes implemented by these teams had a detrimental effect on team performances.

Therefore, with consideration of the above factors in a team's development process relating to the Multimedia/IT environment in higher education the literature suggests developing a model that consists of the following four phases:

1. A presage or pre-grouping phase that evaluates a student's background that could influence team success;
2. A team establishment phase that involves the collection of individuals to form a team;
3. A team operation rules phase that involves setting norms and standards for team behaviour and tasks performance; and
4. A team ongoing conduct issues phase that involves task performance issues.

5.3 Findings

The pilot study revealed that teams who did well in their team life cycle presented prior knowledge in teamwork processes. These skills enabled them to outperform other teams through identifying and maintaining focus on team goals, and sharing roles and responsibilities to achieve team success. Other factors that contributed to their success included:

- Determining skills and roles needed for task completion to help with proper distribution of roles and responsibilities;
- Matching team goals with personal goals, enabling strong commitment to team objectives;
- Good communication skills that encouraged trust and openness;
- Good decision making procedures and sharing leadership role that helped them follow on agreed decisions;
- Organizing and scheduling tasks that helped them to become more accountable and responsible to meet deadlines;

- Good level of collaboration that helped in problem solving and increased participation; and
- Strong interpersonal relationships creating a sense of bonding and cohesiveness that helped them handle conflicts effectively.

The survey showed that facilitator support is significant to teamwork success. External support can guide students in proper team creation with a suitable team size, and minimize weaknesses in individuals such as communication and language barriers that can be maximized by placing them in teams with stronger members to help them share experience and knowledge, thus maintaining team stability.

5.3.1 Phase 1 - Presage

The findings from the pilot study indicated that previous knowledge in teamwork, with complementary skills and abilities were significant to teamwork success. The results indicated that Teams 2 and 7 formed with these attributes and were aware of teaming processes such as determining roles and skills needed for task completion. Teams with good communication skills and knowledge in teamwork processes demonstrated higher success average than teams who were lacking these skills.

Teams 1, 4, 8 and 9 lacked communication skills and knowledge in teamwork processes which resulted in low performance and missing deadlines. For instance, Team 1 lacked the abilities in teaming processes. Team 4, a team of multi national students, were not able to deal with the cultural diversity within their team. Team 8 were only two members who were not able to express their views effectively. Team 9 were six members who were not able to identify their purpose in the team or communicate with each other effectively.

The information derived from the literature review aligns with the findings of the pilot study. Knowledge and experience in teaming skills is significant to teamwork success (Johnson & Johnson, 1999; Harris, 2003; Stewart, Manz & Sims, 1999). Moreover, a suitable and consistent selection method for assigning students into teams is a deciding factor for teamwork success (Johnson & Johnson, 1999). Teams 1,4, 8 and 9 struggled partly because the processes implemented in their team selection were not based on a pre-tested methodology. This confirms that students in Multimedia/IT development do not always have control over their team creation, which can affect their overall success.

Within Multimedia/IT development environments in higher education, students are encouraged to work in teams to develop team-based projects, which enables them to share knowledge, experience, feedback and exchange of ideas. However, students do not always have control over the making of an effective team and some of the skills and processes highlighted in the literature such as knowledge, experience, training, support, resources, and proper team creation can have a definite impact on team performance and success. The study suggests a possible approach to forming successful teams, which considers students' skills, talent and abilities such as communication and collaboration skills. The literature identified aspects that are essential to students' teamwork success which align with the results of the study.

- Training students in team structure methodology, effective team communication, creativity skills, project management skills and handling cultural diversity.
- Teacher support, coaching and monitoring throughout the life cycle of a team.
- Ensuring availability of resources to all students according to project needs.
- Utilizing effective team selection methods that require teacher mentoring.

Students with knowledge in teaming processes can produce better teamwork outcomes. Therefore, coaching and teacher support is recommended throughout the team's life cycle to provide guidance and build positive interdependence among team members. Table 2.2 outlines the important attributes or criteria derived from the literature for the pre-grouping phase that can lead to proper team construction.

5.3.2 Phase 2 - Team Establishment

High performing teams in the study appeared to have identified project type and its requirements. They demonstrated an appropriate level of commitment to team common goals. These attributes were presented in Teams 2 and 7 who were able to allocate roles according to skills and then distribute them in line with project task requirements as well as share responsibilities to achieve teamwork success. The findings also identified that most of the teams lacked the required ability to determine appropriate skills and roles allocation with project needs, and clear goals, which caused confusion and frustration throughout their team life cycle. However, all teams presented a moderate commitment level in this phase. From the findings it appeared that students need to carefully consider setting goals in this phase, which will help to define the purpose of the team coming together and clarify what is expected from team members to achieve

project completion, as confirmed by authors such as Tyson (1996), Beatty & Barker-Scott (2004) and Harris (2003).

The analysis also identified that teams were apparently either too small to manage the workload, too large to be able to define and allocate roles effectively, or a mix of multi-national students with language barriers. The literature confirmed a small team size of three to five members (Luca & McMahon, 2005; Parrish, 2001) with a balance of skills and abilities needed for task completion would contribute positively to teamwork success (Sutherland & Bonwell, 1996; Furnham, 1994; Adair, 1986; Belbin, 2000).

In this phase individuals transform into team members. The focus was to explore criteria that can influence team success. The study also identified team management practices consisting of three strategies that integrate issues related to tasks, social and commitment (Figure 2.6). These strategies are relevant to all phases in the team development cycle and can provide the foundation for teamwork success. They also help to identify successful attributes team members need to enable team formation with members that can offer a balance of skills, talents and abilities.

The study revealed that three to five members appeared to be an appropriate team size that enables all members to use their full potential and involvement and is best suited to the Multimedia/IT development environment in higher education. In this phase team members begin thinking of 'team goals' instead of individual goals. Authors recommend the clear understanding of project type and its tasks to enable setting clear goals. Understanding the purpose of the team coming together will help to determine project needs, appropriate distribution of tasks according to skills, roles, abilities, resources available and project duration. Additionally, along with technical skills members also need to consider complementary skills such as problem solving, decision-making and professional skills. Derived from the literature Table 2.4 outlines the essential criteria and attributes needed to be considered in team establishment or formation.

5.3.3 Phase 3 - Team Operation Rules

The findings revealed that only Team 2 was able to produce an average result, while the rest of the teams were below average in this phase. This team was able to set some rules here that helped them to perform better than the rest of the teams in the final phase. They implemented satisfactory project planning, monitoring and evaluating, and

decision making procedures that helped them to outperform Team 7. Also they were able to set norms and standards for communication, problem solving and conflict handling but they did not set any rules for acceptable behaviour. However, they appeared to manage because of their strong friendship. Teams 1, 3, 4, 5, 6, 8 and 9 in the study presented low quality products, team discontent and some of them missed project deadlines due to lack of task and behaviour management.

The literature confirms that teams need to agree and follow processes to manage their tasks and deadlines, as well as norms and standards for acceptable social behaviour to ensure equal contribution from all members, accelerate team performance and achievement of expected product quality (Beatty & Barker-Scott, 2004; Luca & McMahon, 2005; Kipp & Kipp, 2000; Romig, 1996; Harris, 2003).

In this phase team members set out their rules or norms and standards of how they are going to behave and how they will carry out their tasks. These rules can be unwritten expectations or written agreements that can guide their team behaviour towards each other as well as organization and management of tasks, resulting in team member satisfaction and achievement of their common goals. The literature suggests that setting team rules and standards are critical to team success (Table 2.5). Setting rules of operation can help students identify strengths and weaknesses in their team and lead to development of strategies to deal with difficulties and reduce confusion.

The literature recommends considering two elements in this phase. The first element discusses team management rules and processes such as members' contribution towards the project and their need to plan how they will manage their tasks, roles, timesheets, deadlines, meetings, decisions and a tracking system to help in project evaluation. In addition, sharing or rotating the leadership role will give members' the opportunity to make varied contributions to the project thus improving team synergy.

The second element outlines team behaviour rules where team members determine and set their boundaries for acceptable behaviour to maintain team common values. They need to set norms for communication that will encourage openness, trust and support. Good communication skills can help teams in reaching mutually satisfying solutions to problems and conflicts. The literature suggested rules and processes for problem solving such as the six-step procedure to increase team productivity. The literature also highlights a variety of conflicts that can arise in a team and recommends open acknowledgement of problems and working together to set protocols to deal with future

similar conflicts. Building interrelationships by identifying an internal and external support structure can also help keep the team united and work collectively towards maintaining stability. It is important to emphasize once again that setting norms and protocols for the criteria within both these elements can assist in achieving team member satisfaction and a smooth transition into the next phase.

5.3.4 Phase 4 - Team Ongoing Conduct

Successful implementation of rules and processes determined in Phase 3 enabled Team 2 to work well together, retain a good commitment level where members were motivated to achieve team goals, and result in achieving the best performance in all teams. Team 7 was second best in this phase because they were able to work well together to get their tasks done and complete their project. The difference between these two teams is that Team 2 were well organised towards project tasks and presented better interpersonal relationship.

The literature confirms that when members are committed to tasks, roles and responsibilities to achieve team goals it encourages better communication and collaboration. Good interpersonal relationship creates a sense of ownership and team synergy where members feel responsible and accountable to achieve team common goals, resulting in team satisfaction and increased productivity (Katzenbach & Smith, 1993; Beatty & Barker-Scott, 2004; Hays, 2004; Johnson & Johnson, 1999).

The final phase of the team life cycle, which is similar to Tuckman's (1965) 'performing' stage, is where team members are focused and working together towards the overall goals after defining roles, procedures and support structure. The criteria, attributes and processes defined in the earlier phases of the team life cycle helped team members to develop into a well structured group with well defined roles, norms to determine behaviour and task management, positive interrelationships and good communication skills.

The focus of this phase is on the team's commitment to its purpose and essential attributes needed to sustain its stability and productivity. Team's commitment towards set norms for acceptable behaviour and attitudes enables better communication, collaboration to achieve their common goals. The study outlined six important issues derived from the literature consisting of collaboration, problem solving, resolving conflict, professional skills, positive interdependence and monitoring/evaluating.

The study defined team collaboration as the ability to work together in a cooperative manner in relation to tasks and problem solving as well as the willingness to adjust by encouraging openness, trust and respect. These attributes can improve members' interrelationship and assist in creating solutions to problem solving and resolving conflict. In addition it encourages positive interdependence thereby increasing productivity.

For maintaining team stability the literature highlighted the importance of team bonding and cohesiveness as both present a meaning of team unity and create a sense of belonging. These attributes can encourage members to become responsible and accountable where they monitor and support each other to meet their commitments and achieve the team common goal. Table 2.6 outlines the attributes that need to be considered in the final phase.

5.4 Limitations

This was a pilot study that was implemented with a relatively small number of students. Therefore, the analysis performed, was based on themes and patterns detected by comparing team averages. Limitations include no reliable/valid statistical analyses such as t-Tests or factor analyses.

5.5 Implications For Further Research

The results from this pilot study give an indication of how teams can implement strategies to help promote successful teamwork. However, further research is needed with greater numbers to fully validate these results.

An interesting follow up study could be performed by comparing two different classes, and giving one class this model and all the established procedures, and comparing the results to the other class (control group), in which teams would be established in the traditional way. In this way, statistical and qualitative research methodologies could be used to detect where any significant differences exist.

Also, future studies could be carried in different disciplines and environments, other than Multimedia and IT.

5.6 Conclusion

In conclusion it can be seen that the attributes derived from the literature seem to be key factors that need to be considered throughout the team life cycle to ensure successful teamwork. The survey findings revealed that the higher performing teams implemented most of the attributes identified in the research as opposed to those teams who did not consider or implement these attributes to achieve project outcomes. However, none of the teams in the case study presented outstanding performance and this could be attributed to the general lack of knowledge in teamwork processes. This is aligned with the literature review and confirms the needs for team members to address the team development phases clearly as well as determine and agree on procedures for each phase to achieve team success. The team success factors were identified and addressed through the team life cycle model (Figure 2.1) found to be essential for teamwork success.

The study indicated that there was a need for students to be trained/skilled in teaming processes such as:

- Team structure methodology;
- Clear goal setting;
- Allocating roles and responsibilities according to tasks and project needs;
- Managing tasks and setting behaviour rules;
- Decision making procedures;
- Communication;
- Collaboration;
- Managing cultural diversity;
- Building interpersonal relationships and interdependence; and
- Effective problem solving and conflict handling processes to increase team productivity and achieve team overall goals.

Finally, the analysis provided in this chapter indicates teamwork skills identified in this study to be important for teamwork success in Multimedia and IT development teams. These skills, along with the team life cycle and guidelines developed from the literature review, can assist in implementation of effective and efficient strategies to increase productivity and raise the success rate of team performance.

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APPENDICES

Appendix A Questionnaire presented to Multimedia and IT students.

MULTIMEDIA STUDENTS TEAM ATTRIBUTES

This survey is part of the research for my Honours thesis. This questionnaire is strictly confidential and completely anonymous. It will take 10 minutes to complete.

Rating: 1=Low, 2=Below standard, 3=Average, 4=Above standard

TEAM NAME:	ROLE:					
Section 1 - Presage		Low	-			High
1	I have previous experience in teamwork.	1	2	3	4	5
2	My team is supported by the lecturer in managing team affairs when needed.	1	2	3	4	5
3	I have previous knowledge related to team development stages.	1	2	3	4	5
4	All team members are skilled in what they do.	1	2	3	4	5
5	Resources such as material and equipment are available to do my project.	1	2	3	4	5
6	How did you join this team? (Please circle appropriate)	Friend -Skill - Role - Experience				
Section 2 - Establishment		Low	-			High
1	We considered the size of our team according to range of skills and abilities needed for the tasks.	1	2	3	4	5
2	We determined project type and resources required at the team formation stage.	1	2	3	4	5
3	Personal goals were identified and matched with team goals.	1	2	3	4	5
4	My team is motivated to achieve our objectives.	1	2	3	4	5
5	My team members communicate well together.	1	2	3	4	5
6	I am clear about my role in the project.	1	2	3	4	5
7	All members are committed to this team and its objectives.	1	2	3	4	5
Section 3 - Norms		Low	-			High
1	My team agreed on processes for collection of information, exploring options, evaluating, and problem solving.	1	2	3	4	5
2	My team has defined processes for managing responsibilities and roles.	1	2	3	4	5
3	My team organized project management processes such as planning and time management.	1	2	3	4	5
4	Team leader's willingness to support team members.	1	2	3	4	5
5	My team has set rules for proper decision making.	1	2	3	4	5
6	All team members share in the decision making process.	1	2	3	4	5
7	Important rules have been set at an early stage.	1	2	3	4	5
8	Disruptive behaviour is blocking my team from achieving our goal.	1	2	3	4	5
9	My team established communication procedures and I express my views freely within my team.	1	2	3	4	5
10	Team members set guidelines to avoid conflict.	1	2	3	4	5
11	My team has established a good reporting structure.	1	2	3	4	5
Section 4 - Conduct		Low	-			High
1	All team members' abilities are used well to accomplish our goal.	1	2	3	4	5
2	All team members are committed and contribute equally.	1	2	3	4	5
3	How well are your technical abilities used?	1	2	3	4	5
4	My team applied project management processes such as tracking and evaluation.	1	2	3	4	5
5	My team builds on my suggestions and ideas.	1	2	3	4	5
6	My team members help and support each other in difficulties.	1	2	3	4	5
7	My team trusts and respects my point of view and contributions.	1	2	3	4	5
8	There is a high level of cooperation within my team and we work well together.	1	2	3	4	5
9	Problem solving and decision making are very effective in our team.	1	2	3	4	5
10	Problem issues remain under the table.	1	2	3	4	5
11	My team is innovative.	1	2	3	4	5
12	My team thinks before jumping into conclusions.	1	2	3	4	5
13	My team members avoid conflict.	1	2	3	4	5
14	The quality of decision making in my team.	1	2	3	4	5
15	All team members treated me fairly.	1	2	3	4	5
16	All team members have a good relationship.	1	2	3	4	5
17	I am satisfied with the performance of my team.	1	2	3	4	5
18	I worked my full potential with my team.	1	2	3	4	5
19	My team follows on agreed rules for collection of information, exploring options, evaluating, decision making and problem solving.	1	2	3	4	5
20	How well has your group followed the planned team rules?	1	2	3	4	5
21	Our client is satisfied with the progress.	1	2	3	4	5

Please answer the questions that you feel apply to you.

1	How willing would you be to work with this team again?
2	What hindered your team from achieving success?
3	Based on your experience with your team, what attributes do you consider essential for teamwork success?
4	What are the best aspects or features of the team that helped your team performance?
5	What are the worst aspects or features of the team that caused the most problems?
6	Do you consider this study to be beneficial to you to improve teamwork success?
7	Additional comments on teamwork