The Relationship between Team Characteristics and Team Effectiveness: An Integration of Campion's and Cohen's Models.

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Abstract

This study uses 22 teams from 3 organisations to examine the influence of team characteristics on the effectiveness of work teams. The model tested is an integration of Cohen's (1994) and Campion, Medsker, and Higgs' (1993) models. Five independent characteristics are used: task design, interdependencies, composition, context, and process. These are examined along with four effectiveness criteria: perceived performance, quality of work life, managers' judgements of performance, and withdrawal behaviour. The results of a path analysis show that task design and process characteristics predict team members' ratings of performance and quality of work life while interdependence and composition characteristics predict only team members' ratings of performance. As hypothesised, team members' quality of work life negatively predicts their withdrawal behaviour.

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1. Introduction

Human resource management is concerned with the management of people including how to recruit employees, how to train them and how to ensure they are effective in their jobs (Dessler, 1994). Traditionally, human resource management has been concerned with the management of individuals. However, in today's increasingly complex business environment, many organisations, including several in New Zealand, are adopting a team-based structure to enable them to be more responsive to changes in their environment. This provides many challenges to human resource practitioners who are used to dealing with employees at an individual level. One of these challenges, how to make teams effective, is the focus of this study.

Although teams and teamwork have become a major focus over the past years and have been implemented by many organisations (Greenberg & Baron, 1995), how much is really known about the determinants of team effectiveness? What makes one team succeed and a similar team fail? These questions can be answered in part by examining the current models of team effectiveness. However, many of the models lack rigorous testing in the workplace which limits their usefulness to being merely a stimulus for academic debate.

Many organisations have gained significant improvements through employing a team-based design (Greenberg & Baron, 1995). Both subjective and objective data have shown that teams may be the key to helping organisations become more profitable. In their 1995 survey of teamwork in New Zealand, KPMG quote that since implementing teams, 84% of the organisations studied have experienced an increase in quality, and most organisations have seen improvements in employee relations and staff morale, and a reduction in employee turnover. The improvements gained by American organisations moving to a team-based design are considered by Greenberg and Baron (1995). Federal Express reduced errors by 13% in 1989, Xerox increased productivity by 30%, and Exxon had a $10 million saving in six months.

Although these results are impressive, not all moves to team-based designs may be as productive for reasons such as a lack of support and resources (KPMG, 1995).

As mentioned previously, organisations have reported increases in both productivity and employee satisfaction when using teams (KPMG, 1995; Montebello, 1994). Teams may therefore provide a link between employee satisfaction and productivity - a bond that has long been sought after. Consequently, it is very important to understand the characteristics of effective teams, if they are to play an increasing role in today's organisations (Campion, Medsker & Higgs, 1993).

This study aims to examine whether certain characteristics of teams can influence their effectiveness. If this is the case, team designers should be able to create teams that are more likely to succeed.

The study integrates two theoretical frameworks of team effectiveness that four previous research studies were based on, namely: Campion, Medsker, and Higgs (1993); Campion, Papper, and Medsker (1996); Cohen (1994) and Cohen, Ledford, and Spreitzer (1994). The resulting model has five characteristics - task design, interdependence, composition, context, and process, as well as four effectiveness criteria - performance, managerial judgement, quality of work life, and withdrawal behaviours. The integrated model is tested on a sample of twenty-two work teams in three organisations.

Overview of the following chapters.

Chapter Two examines the current literature on team effectiveness models. Reviewed are three models that Campion et al. (1993) and Cohen (1994) have partly based their models on, namely Hackman (1987), Gladstein (1984), and Tannenbaum, Beard, and Salas (1992). Following this is an in-depth examination of Campion et al.'s and Cohen's models. The integrated model and the variables pertaining to it are presented in Chapter Three. Chapter Four examines the methods used in conducting this study including the questionnaires and statistical methods employed. Chapter Five presents the results of the study while Chapters Six and Seven discuss the

results of the study and the limitations and directions for future research. The conclusions based on the findings of the study are presented in Chapter Eight.

2. Prior Research on Team Effectiveness

Teams and teamwork have generated a substantial amount of research on a variety of topics. Chapters Two and Three summarise the research relevant to team effectiveness. Chapter Two reviews the literature on team effectiveness models including the two models on which this study is based. Chapter Three consists of an in-depth review of the literature pertaining to the variables in the integrated model.

2.1 Definitional Issues

The terms 'team' and 'group' are used interchangeably by many authors in the literature as discussed by Guzzo and Dickson (1996). Some people believe a team is more than a group but the myriad of definitions that exist for both terms do not clearly differentiate between the two. For the purposes of examining their effectiveness, a team will be defined as a group of people who perceive themselves to be a team, who have shared responsibilities and resources, who work together, and depend on one another for knowledge and effort on a variety of interdependent tasks (Campion et al., 1996). This definition is relatively broad and appears to encompass many definitions given for a group. For example, Guzzo and Dickson's definition of a group is "individuals who see themselves and who are seen by others as a social entity, who are interdependent because of the tasks they perform as members of a group, who are embedded in one or more larger social systems (e.g. community, organization), and who perform tasks that affect others (such as customers or co-workers)" (pp. 308-309).

In this study, the words 'team' and 'group' will be used interchangeably as recommended by Guzzo and Dickson (1996). This recognises that the different labels may represent different perspectives rather than a fundamental divergence of concepts. It is also for convenience that the terms are to be used interchangeably as the term 'group' predominates in some literature with 'team' used in other studies.

Effectiveness has many definitions in the literature (Guzzo & Dickson, 1996). When dealing with teams in organisations, effectiveness becomes even more complex as many organisational tasks do not have clearly right or wrong solutions (Hackman, 1987). One organisation may define effectiveness purely in terms of the quantity a team produces whereas another organisation may include quality of work life and product quality in their definition. Current thinking in the literature suggests the second approach is better since many teams are required to continue functioning together long after one particular product is completed (Sundstrom, De Meuse, & Futrell, 1990). In order to be able to function effectively in the future, team members must be satisfied with the team experience. This needs to be considered in a definition of team effectiveness. Similarly, product quality is an important dimension of team effectiveness due to the increased demand by customers for high quality products.

Each team effectiveness model has its own definition of effectiveness. The effectiveness criteria to be used in this study will be discussed in a later chapter.

2.2 Team Effectiveness Models

A large number of team effectiveness models exist in the literature. These models attempt to explain the antecedents of team effectiveness. This review will examine three models that Cohen's (1994) and Campion et al.'s (1993) models are, in part, based on. These models are those of Hackman (1987), Gladstein (1984), and Tannenbaum, Beard, and Salas (1992). After these three models have been examined, Campion et al.'s and Cohen's models will be examined in greater depth, including relevant research findings.

2.2.1 Hackman's (1987) Normative Model of Group Effectiveness

Hackman's (1987) model is one of the best known and most influential models of group effectiveness (Bushe & Johnson, 1989). It is a very practically oriented model in which he attempts to bridge the gap between understanding group behaviour and improving it (Hackman, 1987). It relates only to real groups in an organisational context that have one or more tasks to perform. Consequently it is beyond the realm of artificial laboratory groups. Hackman's model is shown in Figure 2.1.

Hackman (1987) bases this model on one key proposition with three components. He proposes that the overall effectiveness of a work group is jointly determined by:

- The level of effort team members collectively expend carrying out task work,
- The amount of knowledge and skill members bring to bear on the group task,
- The appropriateness to the task of the performance strategies used by the group in its work.

These three dimensions are combined together in the 'process criteria of effectiveness' variable. This variable together with the organisational context, the design of the work group, group synergy, and material resources, make up the independent variables of Hackman's model.

The five independent variables are joined together in a way that implies an input-process-output model. Organisational context and group design jointly affect the quality of the group processes with the relationship moderated by group synergy. The group's process then determines the effectiveness of the group moderated by the material resources available.

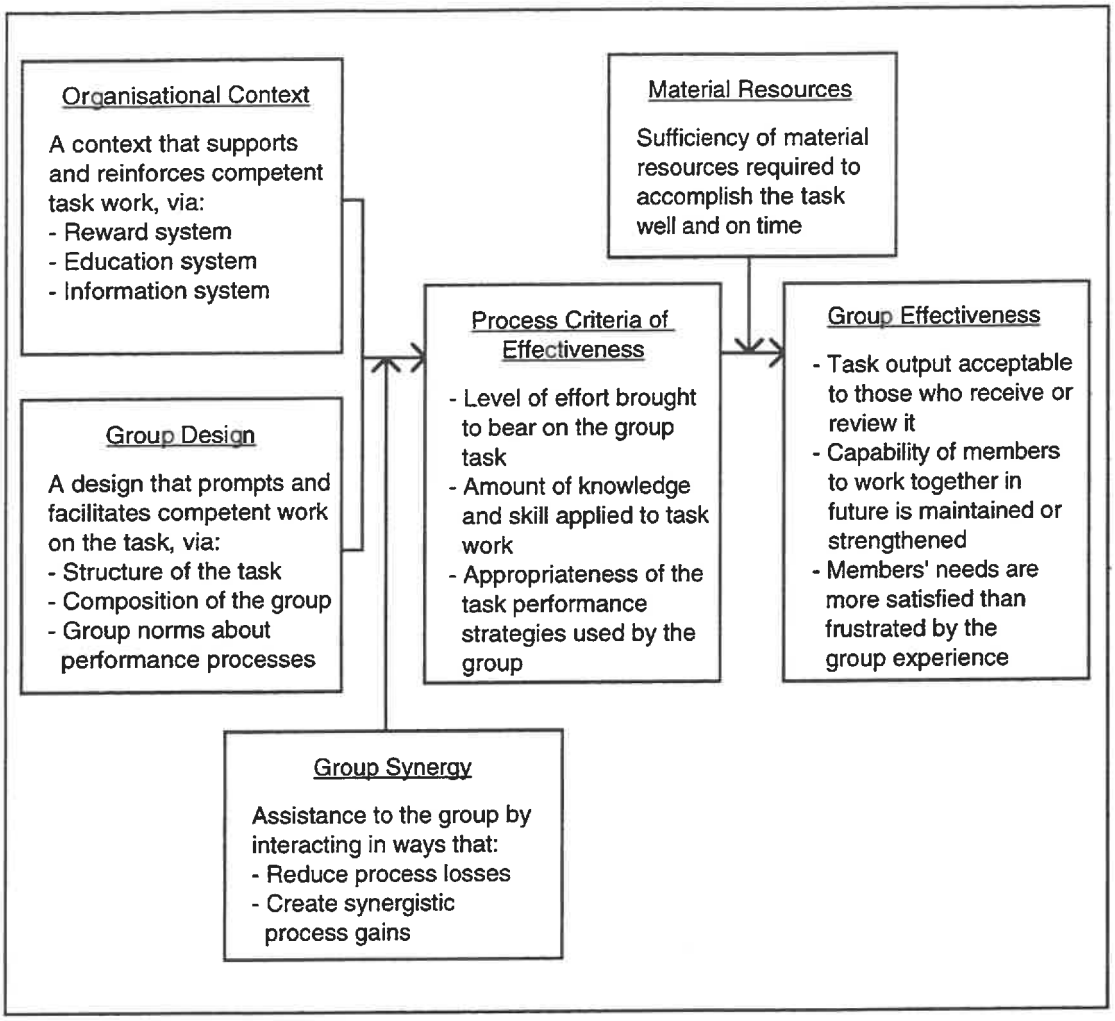

Figure 2.1: Hackman's (1987) Normative Model of Group Effectiveness.

This model uses multidimensional criteria of effectiveness. The three criteria are:

- the task output meeting or exceeding the expectations of those who receive or review it,
- the capability of members to work together in the future being maintained or strengthened,
- the members' needs being more satisfied than frustrated by the group experience.

The first dimension considers the actual output of the group and is based on the subjective evaluations of the customer or manager that reviews the output.

Subjective measurements are used to allow all groups' outputs to be evaluated. Many groups do not produce output that has a natural objective measurement, for example service teams (Hackman, 1987). However, by using a subjective measurement, an evaluation of the acceptability of the group's output can be obtained.

The second dimension considers the state of the group as a performing unit and stems from the need for groups to work together. If a group burns itself out or creates an unworkable atmosphere it will not be an effective performing unit for the future.

The third dimension reflects the impact of the group experience on group members. "If the primary effect of group membership is to keep individuals from doing what they want and need to do, or if members' predominant reactions to the group experience are disgust and disillusionment, then the costs of generating the group product, at least those borne by individual members, are probably too high" (Hackman, 1987, p.323). Thus, an effective group is partly one that satisfies its members.

Empirical testing of the model.

Vinokur-Kaplan (1995) conducted a study based on Hackman's model on treatment teams in a psychiatric hospital. Structural equations analysis using EQS (Bollen, 1989) showed the data fitted the model well with all goodness of fit measures over the 90% threshold. Overall team effectiveness was directly, significantly predicted by four variables - small teams, meeting the required standards for team output, team cohesion, and the amount of knowledge and skills applied to the task under conditions of collaboration.

Although Hackman's (1987) team effectiveness model has been around for a number of years and is widely discussed in the literature, no other empirical testings of the model appear to exist in journal article listings such as ABI Inform and PsycLIT.

2.2.2 Gladstein's (1984) Model of Group Behaviour

This model is process based with two levels of inputs - group and organisational. It is primarily based on McGrath's (1964) model but also includes influences from more current literature (Gladstein, 1984). Gladstein's model of group behaviour is shown in Figure 2.2.

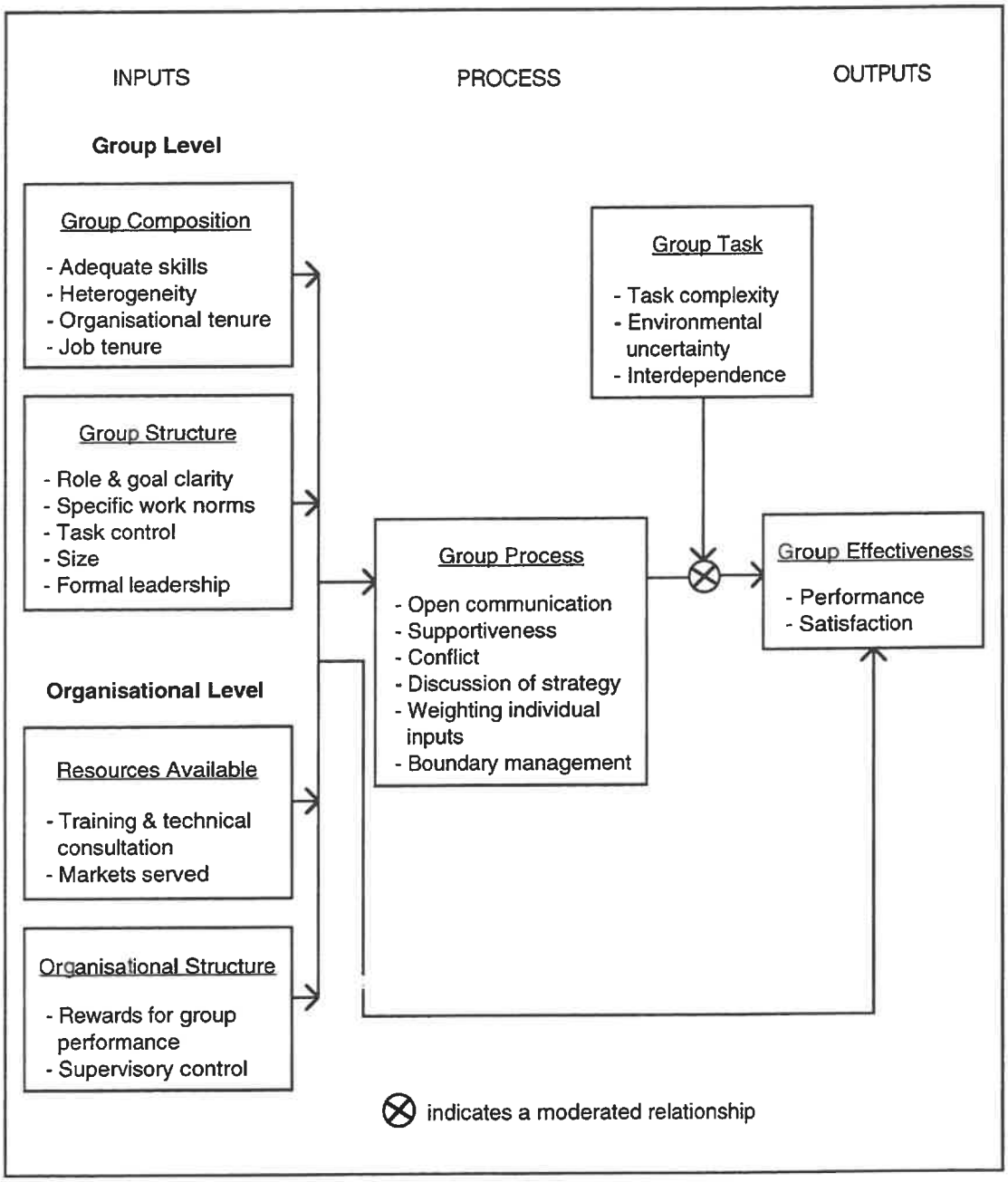

Figure 2.2: Gladstein's (1984) Model of Group Behaviour.

Group level variables in the model are group composition and group structure with resources and organisational structure constituting the organisational level variables. These four variables combine together to directly affect group process and also directly affect the overall group effectiveness. Gladstein (1984) sees group process as the intra-group and inter-group actions that transform resources into a product. These are either maintenance behaviours to build, strengthen and regulate the group's life, or task behaviours to solve the objective problem the group is committed to (Gladstein). Group process is in turn moderated by the group task to determine the group's effectiveness. Gladstein suggests that the relationship between group process and effectiveness is not constant in that it may vary with the nature of the task to be performed.

Effectiveness in Gladstein's (1984) model incorporates two elements - performance and satisfaction. The performance dimension includes objective measurements of performance and self-reported measures of performance on problem solving, decision making, and getting the work done. The satisfaction dimension includes three scales designed to measure overall satisfaction. These are as follows: satisfaction with the group, satisfaction with meeting customer's needs, and satisfaction with the job, compensation system, performance evaluation, advancement, and workload.

Empirical testing of the model.

This model was tested on a relatively large number of work teams in the United States of America by Gladstein (1984). The sample used was approximately one hundred sales teams from the marketing department of an organisation in the communications industry. The results were analysed using a variety of sophisticated multivariate procedures including structural equations modelling.

Goodman, Ravlin, and Argote (1986) discuss the results achieved in the study by Gladstein (1984). "As is often the case, the tests of complicated models such as this one are inconclusive. Some of the findings indicate group process was not

related to actual sales and the moderating effect of the task on the process-effectiveness relationship was not supported, two results contrary to the other studies on groups. The effect of group structure on process relationships, however, was supported" (p.4). The lack of a moderator effect from the task variable may have been due to the lack of variety in the tasks the sales teams performed (Gladstein).

Gladstein (1984) appears to provide the only empirical testing of her model. Given the lack of moderator effect of the task variable due to the homogeneous tasks examined, it is surprising that no other study has retested her model more comprehensively. This is required before the model can be adequately evaluated.

2.2.3 Tannenbaum, Beard, and Salas' (1992) Team Effectiveness Model

This model, like Gladstein's (1984) model, is also based on previous research from the team effectiveness field. It is an input-throughput-output model incorporating several input variables and three measurements of effectiveness. The suggested relationships between the variables make this a very complicated model. The model is shown in Figure 2.3.

The four input variables for this model are individual characteristics, team characteristics, the characteristics of the team's task, and the way in which the work is structured.

Throughput variables represent the way the team interacts over a period in time (Tannenbaum et al., 1992). These are team processes such as co-ordination, communication, conflict resolution, decision making, problem solving, and boundary spanning, and team interventions such as individual training, team training, and team building.

The primary output for the model is team performance measured in terms of quality, quantity, time, errors, and costs. Secondary outputs are changes in the team and the individual team members. These changes have implications for the future performance of the team.

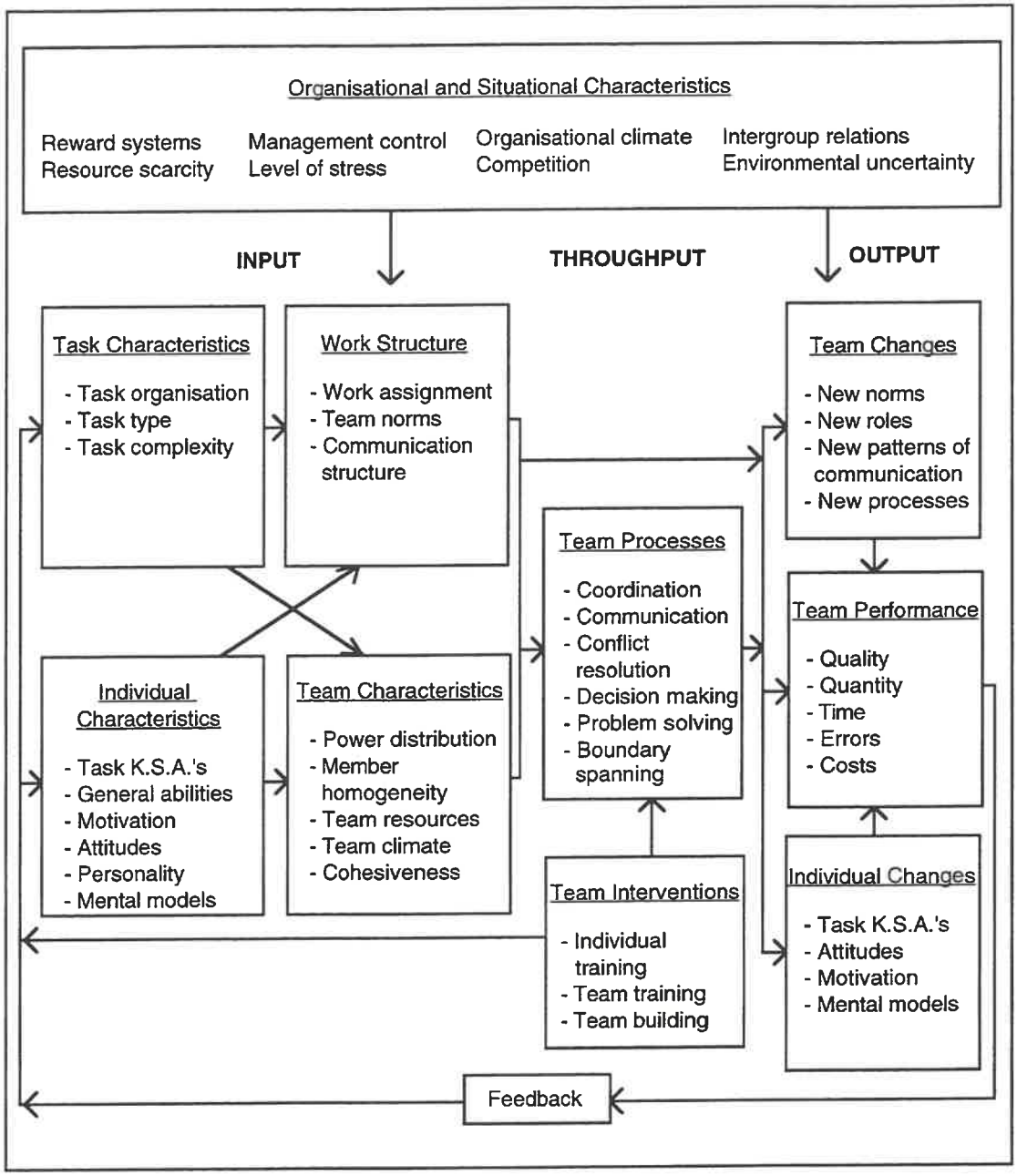

Figure 2.3: Tannenbaum, Beard, and Salas' (1992) Model of Team Effectiveness.

The input variables in this model are hypothesised to affect the output variables both directly and indirectly through the process variable, and to also influence each other. Both task characteristics and individual characteristics are expected to influence team characteristics and work structure.

Another aspect worthy of mention is the existence of a feedback loop. Feedback on the team's performance is hypothesised to affect two input variables:

task characteristics and individual characteristics. Team interventions are seen to influence this feedback loop and to also directly impact on the team processes.

Organisational and situational characteristics are considered external variables in this model. These variables include the reward system, management control, organisational climate, inter-group relations, resource scarcity, level of stress, competition, and environmental uncertainty. It is suggested that they affect all of the variables in the model at each different stage but are not hypothesised to have a direct effect on the team's effectiveness.

Empirical testing of the model.

No empirical testing appears to exist on Tannenbaum et al.'s (1992) model, perhaps for two reasons. First, it is a relatively new model and consequently may still be under evaluation and integration into the theoretical literature. Second, the complex nature of the model may make the variables difficult to measure and the interrelationships difficult to observe. This model, none the less, needs to be tested to evaluate its contribution to understanding the nature of work team effectiveness.

2.2.4 Comparison of the Three Models

Overall, these three models have very similar content. All of the models include variables such as team process, task characteristics, the organisational context, and composition. However, each model also brings with it some unique variables. Hackman (1987) specifically considers the notion of synergy which neither of the other two models mention. Similarly, Tannenbaum et al. (1992) include an explicit feedback loop in their model. What also differs is the emphasis and order of the variables. All three of the models are based on an input-process-output framework. However, the authors treat the variables differently. For example, Gladstein (1984) hypothesises that the type of task mediates the relationship between process and effectiveness whereas the other two models treat task as an input variable.

A further difference between the three models is the definition of effectiveness used. All of the models use a combination of productivity and satisfaction to define effectiveness. However some models, for example Hackman (1987), are far more explicit in defining these criteria. This once again illustrates that no universal definition of team effectiveness exists.

The high degree of agreement between the models on the variables that should be included in determining team effectiveness must be seen as encouraging. What needs to be ascertained however, is how these variables relate to effectiveness and what effectiveness actually is.

The three team effectiveness models that have been examined provide a background for understanding Cohen's (1994) and Campion et al.'s (1993) team effectiveness models, which will now be examined in some depth.

2.2.5 Campion, Medsker and Higgs' (1993) Conceptual Framework of Team Effectiveness

Campion et al.'s (1993) framework was derived from a large number of fields. Principles from social psychology, industrial engineering, socio-technical theory, and organisational psychology were combined with concepts from previous effectiveness models to provide a model that reflected the key components of the various fields. The resulting model in shown in Figure 2.4.

This framework has five key themes: job design, interdependence, composition, context, and process. The job design theme is closely related to work by Hackman and associates (for example Hackman, 1987; Hackman & Oldham, 1976, 1980; Hackman, Oldham, Janson, & Purdy, 1975), however some terminology differences exist reflecting the use at team level as opposed to individuals. The dimensions in this theme are self management, participation, task variety, task significance, and task identity.

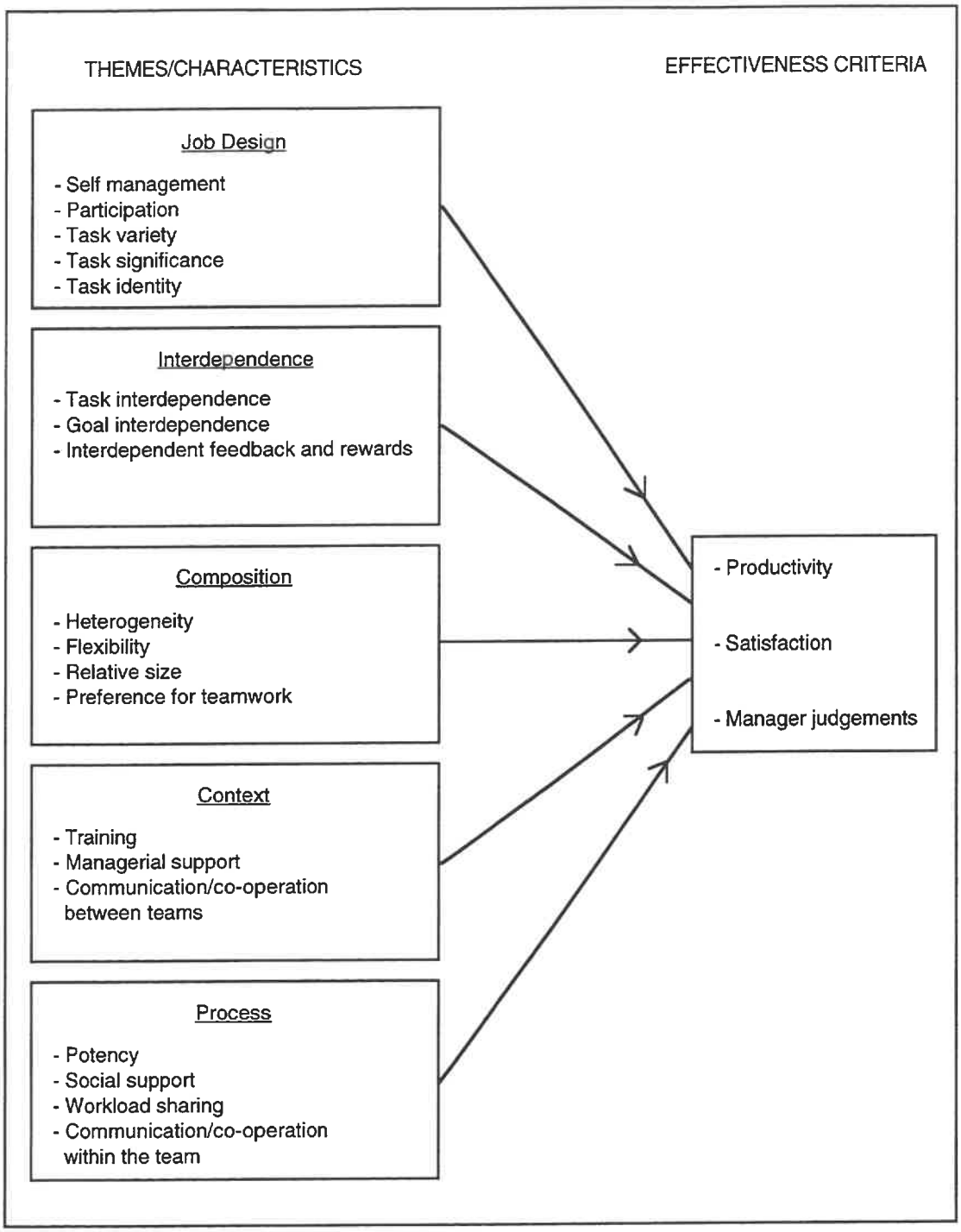

Figure 2.4: Campion, Medsker, and Higgs' (1993) Conceptual Framework of Team Effectiveness.

The interdependence theme has arisen from work by Guzzo and Shea (1992) and Shea and Guzzo (1987b). Three types of interdependence are considered: task interdependence, goal interdependence, and interdependent feedback and rewards.

Composition themes are present in all the models of team effectiveness that have been considered previously. In Campion et al.'s (1993) framework, four dimensions of composition are considered: heterogeneity, flexibility, relative team size, and the preference for teamwork.

Contextual themes are also considered in all of the team effectiveness models examined previously. This reflects the importance of the team's context in influencing effectiveness. The context theme in this model includes the team's training, managerial support for the team, and communication and co-operation between teams in the organisation.

The final theme in this model is process. Process refers to those activities within the team that influence their effectiveness. Four dimensions of team process are considered: potency, communication and co-operation within the team, social support, and workload sharing.

The five themes relate to three effectiveness criteria, namely productivity, satisfaction, and managers' judgements of overall team effectiveness.

The framework suggests that each of the five themes is equally important in determining the effectiveness of teams. Each of the themes has a direct, linear relationship with the effectiveness criteria.

Empirical testing of the model.

This model has been tested on two separate occasions in a financial services organisation, firstly on administrative employees (Campion, Medsker, & Higgs, 1993) and secondly on professional employees (Campion, Papper, & Medsker, 1996). The primary data collection tool was a questionnaire that was developed to assess the nineteen determinants measured on a five point Likert scale.

The effectiveness criteria used in these two studies differed slightly due to the different types of jobs being examined. Campion et al. (1993) used three criteria to assess effectiveness - productivity, employee satisfaction, and managers' judgements of effectiveness. Productivity was calculated as an aggregate of six measures of work

completion that the organisation normally used. Employee satisfaction was measured via an organisational opinion survey conducted three months prior to the study. This time separation eliminated any possible common method bias. Managers' judgements of effectiveness were measured using four items on a questionnaire - quality of work life, customer service, satisfaction of members, and productivity. These items reflected the participating organisation's definition of effectiveness (Campion et al., 1993).

In Campion et al. (1996), effectiveness was assessed using six measurements. These were employee satisfaction, employee judgements of effectiveness, managers' judgements at time one, managers' judgements at time two (three months after the first measurement), support or peer managers' judgements at time two and performance appraisals. Once again, employee satisfaction was measured via an independent company opinion survey. With the exception of performance appraisal data which were obtained through company records, the effectiveness criteria were measured through various questionnaires.

Table 2.1 shows correlations between the dependent and independent variables that were significant at the .05 level in Campion et al.'s (1993) study and Campion et al.'s (1996) study. The composite variables refer to the factors obtained in the factor analysis. Significant correlations are shown for both employee and manager data.

As shown by Table 2.1, the process themes had the most relationships with the effectiveness criteria in both studies. Potency was especially highly related with fifteen out of eighteen relationships achieving significance at the .05 level.

The job design themes had several significant relationships with task variety producing the largest number of significant relationships. Task identity, which was insignificantly related to the effectiveness criteria in the first study, was dropped from the second study.

Table 2.1
Correlations Significant at p<.05 in Campion, Medsker & Higgs' (1993) study and Campion, Papper & Medsker's (1996) study.

Themes/Characteristics	1993						1996											
	Productivity		Employee Satisfaction		Manager Judgements		Employee Satisfaction		Employee Judgement		Manager (T1)		Manager (T2)		Other Manager		Performance Appraisals	
	Emp	Mgt	Emp	Mgt	Emp	Mgt	Emp	Mgt	Emp	Mgt	Emp	Mgt	Emp	Mgt	Emp	Mgt	Emp	Mgt
Job Design																		
Self Management	.23				.28				.24	.23		.43			.22			
Participation			.34				.24		.39		.23		.30					
Task Variety		.20	.23		.19		.31		.57		.37	.35	.29				.27	
Task Significance			.20	-.22	.21	.19	.29		.28			.32						
Task Identity							Not in this study											
Composite	.19	.25	.28		.25	.25	.23		.37	.27	.23	.49						
Interdependence																		
Task Interdependence							.25		.33		.22							
Goal Interdependence							.23		.38		.27		.30					
Interdep. Feedback & Rewards			.27				.27		.34		.27	.40	.53					
Composite	.20		.20				.24		.33		.22	.31	.36					
Composition																		
Heterogeneity									.25		.28				.27			
Flexibility					.35	.19			.39			.25						
Relative Size	.23	.19	.23	.25	.29	.24												-.22
Preference for Teamwork							Not in this study											
Composite	.21		.19		.36	.20			.39			.25						
Context																		
Training			.18		.19		.26				.25							
Managerial Support			.28	.20			.46		.33	.27	.30	.30						
Comm./Co-op between Teams							.34			.34	.35	.24						
Composite			.20				.33		.24		.23	.30						
Process																		
Potency	.29	.22	.20	.27	.38	.28	.46	.24	.69	.45	.46	.73	.38	.42			.25	
Social Support	.20						.46	.28	.68	.42	.42	.67	.48	.34			.24	
Workload Sharing	.21	.22			.20	.23	.43		.54	.26	.49	.47	.42					
Comm./Co-op within Team	.18	.20					.43		.59	.30	.48	.72						
Composite	.26	.25			.27	.27	.47	.28	.65	.43	.52	.74	.48	.40			.23	

Interdependence themes were largely unrelated to the effectiveness criteria in Campion et al.'s (1993) study, but showed more significant relationships in Campion et al.'s (1996) study. Of the interdependence themes, interdependent feedback and rewards produced the largest number of significant relationships.

Composition themes showed the least number of significant relationships of any of the themes in Campion et al.'s (1996) study. However, in Campion et al.'s (1993) study, relative size was significantly related to all of the effectiveness criteria examined.

Contextual themes were related primarily to ratings of employee satisfaction. Of the contextual themes, managerial support had the largest number of significant relationships with the effectiveness criteria.

Of the aggregated composite variables, the job design theme had the most significant relationships in Campion et al.'s (1993) study while the process theme had the most significant relationships in Campion et al.'s (1996) study. All of the composite variables were significantly related to at least one effectiveness variable in each study.

The similarities in the results between the two studies tends to suggest that this model does go some way to providing an understanding of what makes a team effective. Similarities in the results were obtained even though two entirely different types of employees were studied and slightly different effectiveness criteria were used.

2.2.6 Cohen's (1994) Model of Team Effectiveness

Cohen's (1994) model of self managing team effectiveness was derived from several theories of organisational behaviour and pieces of empirical work. It is comprised of four independent variables and three measures of effectiveness. The model is presented in Figure 2.5.

Hackman and Oldham's (1976, 1980) model combined with socio-technical theory provided the background for the group task design variable. Included in this variable are the five main task attributes that Hackman and Oldham see as motivating. These are task variety, task identity, task significance, task autonomy, and task feedback.

The group characteristics variable has been derived from group effectiveness theories such as Hackman (1987). This variable includes three sub-dimensions (composition, beliefs, and process) which are composed of member's expertise, both interpersonal and technical, group size, stability, norms, efficacy, co-ordination, sharing of expertise, and implementation of innovation. Process has been included as an input variable as Cohen (1994) believes process may also influence group design.

The supervisory behaviours variable has arisen from the work of Manz and Sims (1987). Included in this variable are self observation/self evaluation, self goal setting, self reinforcement, self criticism, self expectation, and rehearsal.

Lawler's (1986, 1992) work is the theoretical background for the employee involvement context variable. Included are the five features of an organisation that Lawler states should be moved to the lowest level of the hierarchy in order to support employee involvement. These features are power, information, rewards, training, and resources.

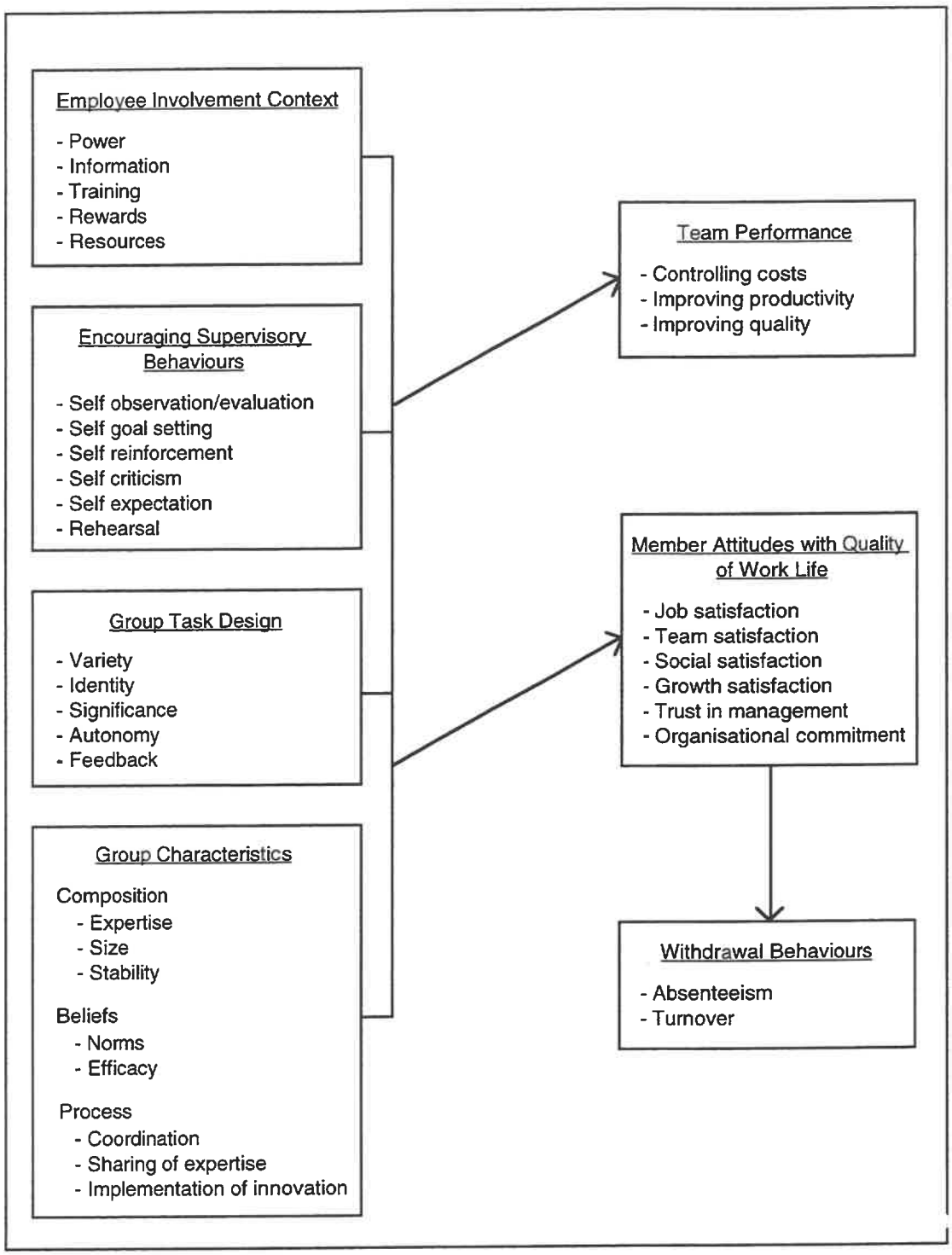

Figure 2.5: Cohen's (1994) Model of Team Effectiveness.

The effectiveness criteria included in this model are threefold. They are performance, attitudes, and withdrawal behaviours. Performance is split into three dimensions: increasing productivity, controlling costs, and improving the quality of the products or services. Cohen (1994) sees these facets as being the basic indicators

of effectiveness for most work teams and being able to be applied across most work settings. Performance may be rated by either team members, their managers, or both.

Attitudinal data are concerned with the team members' quality of work life including their satisfaction with their job, team, social relationships, and opportunities for growth. Also included in the quality of work life section is the team members' trust in management and their organisational commitment. Together, these variables provide an overall sense of the team members' attitude towards their team, job, and organisation.

Withdrawal behaviour draws on both absenteeism and turnover data to include both short and long term behaviour. Cohen (1994) uses these measures as they are seen as being applicable to many different types of work whereas other behavioural measures may be situation specific.

The overall model has been simplified slightly in order to enable the model to be tested. For example, theoretically, efficacy and performance should have a reciprocal relationship. However, this has not been shown in order to reduce the size of the model (Cohen, 1994).

This model hypothesises that all four of the independent variables should jointly impact on the team's performance and the members' quality of work life. The members' quality of work life should then influence their withdrawal behaviours. There is no direct relationship hypothesised between the independent variables and the team members' withdrawal behaviours.

Empirical testing of the model.

This model was tested in a large telephone company in the United States of America on 120 teams - 51 self managing and 69 traditionally managed. The model was tested on two different types of teams so its applicability to each team type could be ascertained.

Table 2.2 shows the correlations significant at the .05 significance level and better for both types of teams combined. All of the variables, with the exception of

self-criticism, were related to at least three of the six effectiveness criteria at the .05 level. Task variety and innovation were both related to all of the effectiveness criteria.

Manager rated performance and absenteeism were the least predicted effectiveness criteria while commitment, overall satisfaction, and team rated performance were the most predicted.

Structural equations analysis was also conducted to see how well the data fitted the model. The resulting models were slightly different for each of the team types.

A major finding from the structural equations analysis in this study was that the predictor variables appear to affect different outcomes (Cohen et al., 1994). Employee involvement context was related to managers' ratings of performance and had the only relationship with quality of work life. Task design and team characteristics predicted team ratings of performance while team characteristics also predicted absenteeism. An unexpected finding was that supervisory behaviours showed no significant relationships with any of the dependent variables for the traditionally managed teams and only one significant negative relationship to managers' performance ratings for the self managed teams (Cohen, 1994). The finding that no one predictor has a significant impact on all effectiveness criteria leads to the conclusion that it may be necessary to manipulate all of the predictor variables in order to gain an improvement in overall team effectiveness.

This model needs further testing to see if the relationships found in this study are generalisable to other organisations and teams. It also needs to be ascertained whether the finding that a given predictor variable does not affect all criteria of effectiveness is able to be obtained in other samples and organisations or whether it is merely a peculiarity of this study.

Table 2.2

Correlations Significant at $p<.05$ in Cohen, Ledford, and Spreitzer's (1994) study.

Variable	Trust in Management	Commitment	Overall Satisfaction	Performance (Rated by Team)	Performance (Rated by Manager)	Absenteeism ($ lost)
Group Task Attributes						
Variety	.19	.28	.42	.32	.19	.21
Feedback	.36	.43	.44	.31		
Identity	.39	.31	.37	.36		.31
Autonomy	.53	.53	.59	.49		.26
Significance		.34	.32	.25		
Encouraging Supervision						
Self-criticism						
Self-rehearsal	.28	.27	.36	.17		
Self-management	.32	.33	.37	.30		
Group Characteristics						
Co-ordination		.21	.48	.46		
Stability		.21	.25	.25		
Norms	.28	.40	.56	.53		
Expertise	.39	.44	.61	.47		
Innovation	.21	.25	.51	.47	.26	.21
Employee Involvement Context						
Power	.50	.56	.61	.50		
Information	.43	.37	.44	.40		
Recognition	.58	.50	.53	.32		
Training/Resources	.50	.55	.57	.56		

2.2.7 Comparison of the Two Models

Cohen's (1994) model and Campion et al.'s (1993) model have similar variables and have both been tested with a reasonable degree of success. However, each model considers variables the other model does not. Campion et al. include interdependence variables in their model, whereas Cohen includes many variables such as expertise, stability, norms, and innovation in her model.

As both of these models have been tested with several variables reaching significance at the .05 level, it would appear that both models do go some way to helping explain team effectiveness. This study aims to go beyond the contributions made by these models to more fully explain team effectiveness. Cohen's (1994) model and Campion et al.'s (1993) model will therefore be integrated together in an attempt to extend and revalidate these existing theoretical team effectiveness models.

This integrated model will then be applied to teams in New Zealand, an area where little research on team effectiveness has been conducted. This will help extend the knowledge on work teams in New Zealand.

Chapter Three considers the integrated model in detail including how Cohen's (1994) and Campion et al.'s (1993) models were integrated and the variables that comprise the model.

3. An Integrated Model: An Overview

3.1 Integrating the Models

The model for this study is an integration of Campion et al.'s (1993) and Cohen's (1994) models. These models were compared and integrated on the principle that they contained very similar variables and were both constructed from previous literature on team effectiveness. Variables were examined and combined or discarded when they were ascertained to measure the same construct. Variables that were combined or discarded are:

- 'Potency' (Campion et al., 1993) and 'efficacy' (Cohen, 1994) were combined and simply termed 'potency'. This was due to the argument by several authors that potency is the team level construct of efficacy (Cohen, 1994; Guzzo & Shea, 1992).
- 'Participation' (Campion et al., 1993) and 'power' (Cohen, 1994) both referred to decision making so were combined as they were essentially different names for the same concept. This combination was termed 'participation'.
- 'Self management', which Campion et al. (1993) defined as the team level analogy to autonomy, and 'autonomy' (Cohen, 1994), were combined and called 'autonomy'.
- 'Co-ordination' (Cohen, 1994) has been included in 'workload sharing' (Campion et al., 1993).
- 'Sharing of expertise' (Cohen, 1994) has been integrated into 'communication/co-operation within the team' (Campion et al., 1993).

These items have been amalgamated into the single variable indicated in order to reduce the number of first order variables and to avoid measuring the same construct twice.

Two variables were omitted on the basis that previous empirical testing found they were insignificant. These variables were 'encouraging supervisory behaviours' from Cohen's (1994) model and 'preference for team work' from Campion et al.'s (1993) model. Encouraging supervisory behaviours was dropped as structural equations analysis conducted by Cohen et al. (1994) found it showed no significant relationship with any dependent variable for traditionally managed teams and only showed one significant negative relationship in self-managed teams. Preference for team work was excluded as Campion et al. (1993) found it was only significantly related to one dependent variable ($p<.10$). Further examination by Campion et al. (1993) revealed preference for team work to be an individual level construct rather than a team level construct.

Variables that were found to be significant in one study but insignificant in the other have been included in the integrated model as there is not enough evidence to exclude them. Differences such as these may have arisen due to the measurement instrument used or the different samples. One example is task identity, found to be unrelated to the effectiveness criteria in Campion et al. (1993) but significant in Cohen et al. (1994).

Some variables in the studies have also been shifted on the basis of previous research on the models. For example, a compromise had to be made between the two models, which each had the dimension 'rewards' in different team characteristics. The decision to proceed with Campion et al.'s (1993) placement was due to the significant results of the interdependence characteristic obtained in their study.

The effectiveness criteria used in this integrated model are a combination of the two models. Team performance, quality of work life, and withdrawal behaviour were all drawn from Cohen (1994) while managerial judgements was drawn from Campion et al. (1993). The productivity and satisfaction criteria in Campion et al.'s model were amply covered by Cohen's performance and quality of work life constructs.

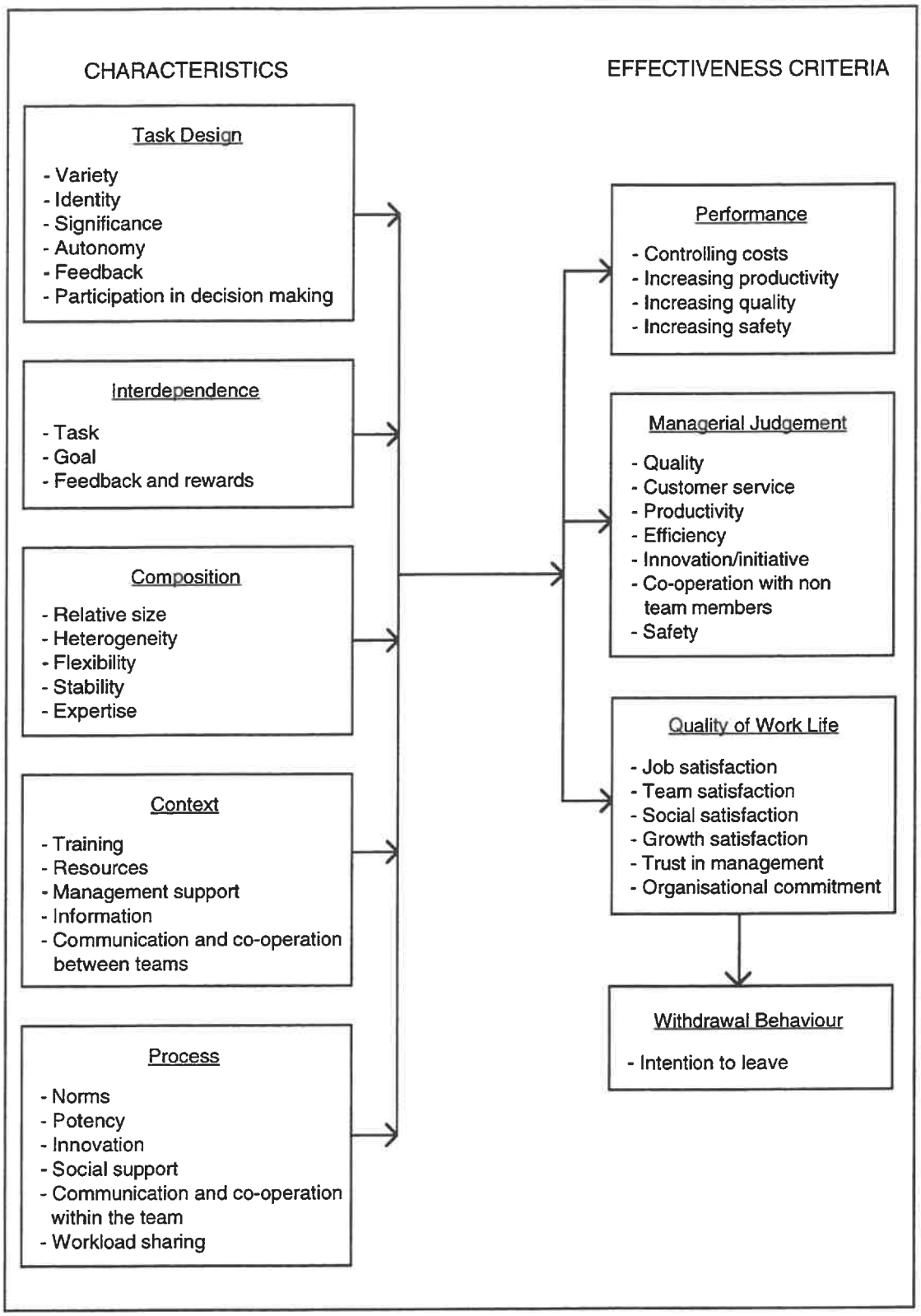

Figure 3.1: The Integrated Model.

The integrated model, shown in Figure 3.1, hypothesises that the five characteristics, task design, interdependence, composition, context, and process, will jointly determine a team's performance, its quality of work life, and the manager's perception of its effectiveness. It is then hypothesised that the team members' quality of work life will predict their withdrawal behaviour. Lawler (1986) states "satisfaction is clearly related to one type of work behavior - the willingness of individuals to continue as employees of an organization and to show up for work on a regular basis" (p.32). Steers and Mowday (1987) also believe that reduced levels of job satisfaction and organisational commitment lead to an increase in employee intention to leave. This relationship is therefore hypothesised to exist in the integrated model.

There is no direct hypothesised relationship between the independent variables and withdrawal behaviours as the models on which the integrated model is based do not include such a relationship. Similarly, no relationships between the dependent variables, other than quality of work life and withdrawal behaviours, are hypothesised to exist.

3.2 Components of the Integrated Model

This section presents a thorough overview of research conducted on the variables in the integrated model in order to provide a comprehensive background. Consequently, not all relationships considered in this review are in the contributing models, or the integrated model.

3.2.1 Task Design Variables

This section of the model draws heavily on work by Hackman and Oldham (1976, 1980) and Hackman et al., (1975) on motivational job design. Many of the variables used are derived from the Job Characteristics Model (Hackman et al., 1975). Although the Job Characteristics Model (Hackman et al.) is based on

individual jobs, components of the model can also been applied to teams (Campion et al., 1993). The Job Characteristics Model (Hackman et al.) is shown in Figure 3.2.

Hackman and Oldham (1980) believe the motivating characteristics of tasks are an important determinant of the effectiveness of teams. The team's task is seen as providing a motivating force that elicits more effort from team members thus being more likely to result in effectiveness. The five dimensions of the Job Characteristics Model (Hackman et al., 1975) are hypothesised to result in three psychological states: experienced meaningfulness of the work, experienced responsibility for the outcomes of the work, and knowledge of the actual results of the work activities. These result in personal and work outcomes. This process is moderated by an employee's growth need strength. (See Hackman et al., 1975 and Hackman & Oldham, 1976 for further discussion on growth need strength.)

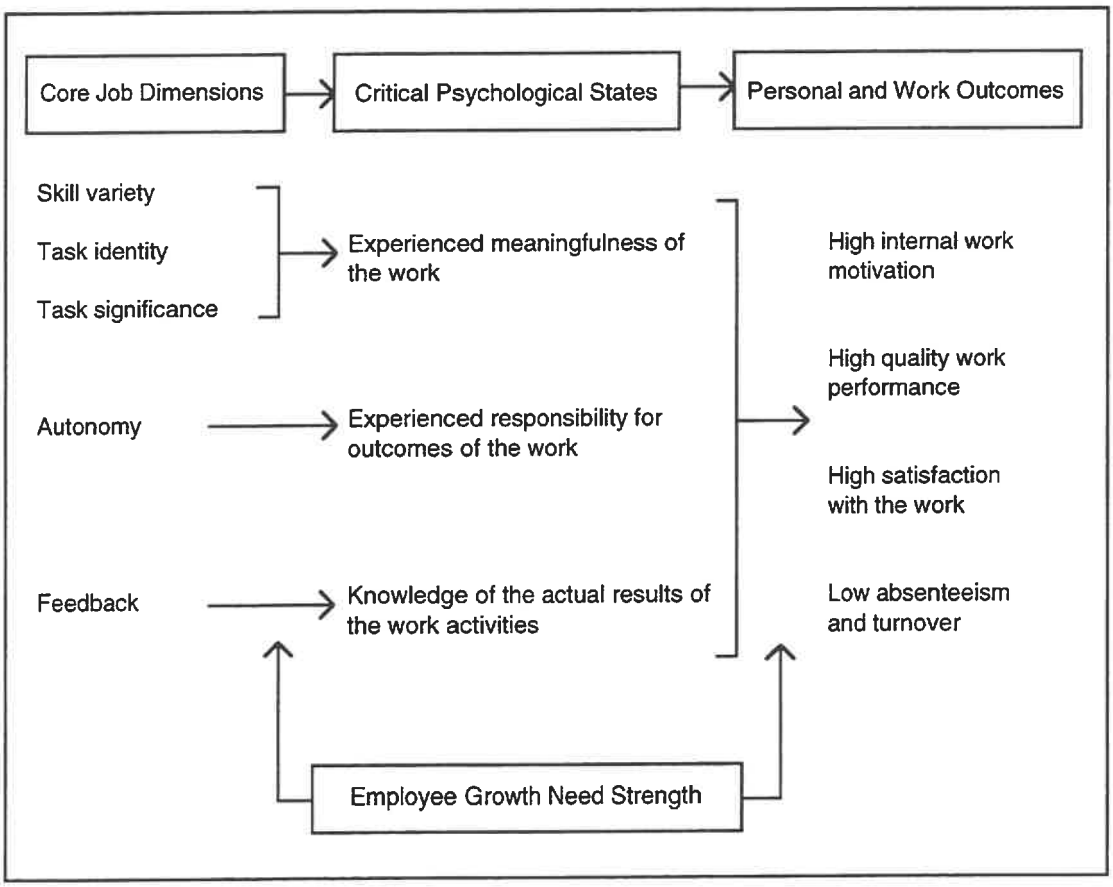

Figure 3.2: The Job Characteristics Model (Hackman et al., 1975).

Task variety, identity, and significance allow team members to believe their work is meaningful, while autonomy gives team members a sense of responsibility over the outcomes and feedback provides knowledge of the results of the work (Hackman et al., 1975).

In the integrated model, participation in decision making is added to the dimensions from Hackman et al.'s (1975) Job Characteristics Model to reflect the hypothesised importance of having team members participate in decision making that affects the team (Campion et al., 1993). Conceptually, participation in decision making could be seen as a sub-dimension of autonomy.

Task variety.

Task variety refers to the degree to which a job challenges the incumbent's skills and abilities by involving different activities (Hackman et al., 1975; Hackman & Oldham, 1976). Allowing team members to use different skills and abilities should motivate by reducing boredom as team members have the opportunity to do both the monotonous and interesting tasks (Campion et al., 1993; Hackman, 1987; Hackman & Oldham, 1976). Task variety also facilitates cross-training which permits teams to become more flexible by enabling the substitution of members for one another (Susman, 1976).

In their meta-analysis of the Job Characteristics Model (Hackman et al., 1975), Fried and Ferris (1987) found that skill variety reduced absenteeism and improved the worker's attitudinal data such as overall job satisfaction, growth satisfaction, and work satisfaction. Skill variety was found to have the strongest relationship with internal work motivation of all of the five characteristics studied.

Hackman and Oldham (1976) found that skill variety was significantly, positively correlated with internal work motivation, general satisfaction, and growth satisfaction. A significant negative relationship was achieved with absenteeism. No relationship was found to exist with a rating of overall work effectiveness provided by management.

Task identity.

Task identity is defined as "the degree to which the job requires completion of a 'whole' and identifiable piece of work - doing a job from beginning to end with a visible outcome" (Hackman et al., 1975, p.59). Task identity is hypothesised to motivate by enabling team members to see an entire work piece finished, encouraging a sense of collective responsibility (Hackman, 1987; Hackman & Oldham, 1976). It also allows team members to see the outcomes of their work (Cohen, 1994).

In their meta-analysis of the Job Characteristics Model (Hackman et al., 1975), Fried and Ferris (1987) found that task identity had the most significant relationship with job performance compared to the other variables tested. Hackman and Oldham (1976) found significant, positive correlations with internal motivation, general satisfaction, growth satisfaction, and a rating of work effectiveness. When correlated with absenteeism, an insignificant, negative relationship was obtained. Although these findings apply to individual people, it is possible they may extend to teams and team members.

Task significance.

Task significance is defined as "the degree to which the job has a substantial and perceivable impact on the lives of other people, whether in the immediate organization or the world at large" (Hackman et al., 1975, p.59). Task significance is believed to motivate team members by enabling them to care about the work they perform and understand its importance to the organisation or its customers (Hackman, 1987; Hackman & Oldham, 1976). Team members are also more likely to co-operate with each other if they believe their work is important (Cummings, 1978).

Hackman and Oldham (1976) found task significance produced significant, positive correlations with internal motivation, general satisfaction, growth

satisfaction, and a rating of effectiveness. An insignificant, positive relationship with absenteeism was reported.

Autonomy.

Autonomy is "the degree to which the job gives the worker freedom, independence, and discretion in scheduling work and determining how [they] will carry it out" (Hackman et al., 1975, p.59). Autonomy increases ownership of the job and encourages a sense of responsibility (Hackman, 1987; Hackman & Oldham, 1976). Autonomy also enables team members to effectively deal with task and environmental demands by making decisions in the process of doing their work (Cohen et al., 1994). Autonomy is needed in teams so decisions can be made on the 'shop floor' when they are needed rather than being deferred to management (Lawler, 1986).

Fried and Ferris (1987) found in their meta-analysis conducted on the Job Characteristics Model (Hackman et al., 1975), that autonomy was related to a reduction in absenteeism and an improvement in worker's attitudinal data. Autonomy was more strongly related to growth satisfaction than the other four characteristics examined.

Hackman and Oldham (1976) found autonomy significantly correlated with all of the outcome variables they considered. A significant positive relationship was found with internal motivation, general satisfaction, growth satisfaction, and a manager's perception of work effectiveness on effort expended, work quality, and work quantity. A significant negative relationship was achieved with absenteeism.

Feedback.

Feedback is defined by Hackman et al. (1975) as "the degree to which a worker, in carrying out the work activities required by the job, gets information about the effectiveness of [their] efforts" (p.59). Feedback allows regular and accurate knowledge of the actual results of the work activities (Cohen, 1994). It also

increases the amount of information about how effectively the team's work is being performed (Lawler, 1986). Hackman and Oldham (1976) see feedback as resulting in internal work motivation which in turn increases the likelihood of performance effectiveness.

Feedback can either be obtained during the work process or from external sources. Feedback that is gathered while doing the job allows team members to monitor their performance and make any necessary changes (Cohen, 1994). Feedback that is obtained from external sources, for example senior managers and customers, is also useful in enabling team members to see the standards necessary to satisfy their stakeholders. However, this feedback is further removed from the task so may hold fewer motivational properties. This study is primarily concerned with feedback that is derived directly from the job itself.

In their meta-analysis conducted on the Job Characteristics Model (Hackman et al., 1975), Fried and Ferris (1987) found that job feedback was associated with reduced absenteeism, improved worker's attitudinal data, and increased performance. Feedback had the strongest relationship with overall job satisfaction when compared to the other four characteristics. It was the most powerful variable to emerge from their meta-analysis so therefore has important implications for the design of motivational jobs. Feedback was positively associated with internal work motivation, general satisfaction, growth satisfaction, and rated work effectiveness in Hackman and Oldham's (1976) study.

Participation in decision making.

Work teams differ regarding the amount of involvement they are allowed in decision making. Teams that participate in decision making enable decisions to be made as near as possible to the point of operational problems and uncertainties (Campion et al., 1993). Effective teams should therefore be those that are involved in decision making as the team members are the people in the organisation who know what is happening on the 'shop floor' (Lawler, 1986).

A team's decision making authority can vary on the types on decisions they are empowered to make. Some teams may make all of the decisions required to run a small business. This may include staffing the team, determining pay rates, quality specifications, managing inventory levels, and other associated decisions (Lawler, 1986). Other teams may make only operational decisions. The human resource decisions may remain with management while the team has responsibility for setting production targets and determining work methods (Lawler, 1986).

Team member participation in decision making enhances the acceptance of decisions (Lawler, 1992). It is also more likely to give a decision of higher quality and to result in higher team member satisfaction (Bass, 1990). However, team member participation in decision making may cause the decision to take longer than if it were made by management (Bass).

Cohen (1994) and Campion et al. (1993) appear to have similar meanings for their variables 'power' and 'participation in decision making'. Cohen sees power as the power to take action and make decisions about work and business performance. Thus power appears to encompass the opportunity to participate in decision making.

Overall, these task design variables in the integrated model are aimed at enriching a team member's job. At the individual level, job enrichment has been shown to produce lower rates of absenteeism and turnover and to increase job satisfaction and quality (Lawler, 1986). It has however, shown less of an impact on productivity (Lawler, 1986). Hackman and Oldham (1980) believe many of the principles that are applicable to individual job enrichment are also applicable to teams. It follows that many of the improvements seen in individual motivation may also be gained with teams.

3.2.2 Interdependence Variables

The interdependence variables stem primarily from the work of Guzzo and Shea (1992) and Shea and Guzzo (1987b). Three types of interdependencies are considered. These are task interdependence, goal interdependence, and interdependent feedback and rewards. Mintzberg (1979) believes interdependencies are often the reason many teams are originally formed.

Kiggundu (1981) argues strongly for including task interdependency in with Hackman et al.'s (1975) Job Characteristics Model to help explain the 'responsibility for ones own work' psychological state. This argument is taken into consideration by including task interdependency in the integrated model.

Task interdependence.

Wageman and Baker (1997) define task interdependence as "the degree to which an individual's task performance depends upon the efforts or skills of others" (p.141). In conditions of task interdependence, team members need to interact and depend on one other to do their work (Campion et al., 1993).

Task interdependence has three sub dimensions - scope, resources, and criticality (Kiggundu, 1983). Scope refers to the breadth of interconnectedness of a job with other jobs. This may be measured using a number of different techniques - the number of contacts between a particular job and other jobs, the percentage of tasks connected with a particular job that are dependent on others, and the time spent in interdependent contacts.

Resources refers to the "degree to which the interdependence between two or more jobs involves receiving or giving resources necessary to do the job" (Kiggundu, 1983, p.147). These resources may include tools, materials, equipment, information, raw materials, and personnel.

Criticality reflects how important the interdependence is to the performance of the job (Kiggundu, 1983). This may range from jobs where interdependence is

unavoidable and necessary to the completion of the task to jobs where interdependence is only needed to enhance performance.

The degree of task interdependence possible depends in most circumstances upon the task. Some tasks are designed to be conducted in a parallel fashion with team members having little or no interaction, for example some research and development teams. Other tasks, for example a production line, are sequentially interdependent with the output of one team member being the input of another. Another category of task interdependence occurs when team members interact frequently to get the task done, for example focus groups and employee involvement teams (Shea & Guzzo, 1987a).

Hybrid designs of tasks, those that include both team and individual tasks, have been shown to be less effective than either pure individual or pure team designs (Wageman, 1995). Hybrid tasks do not experience the benefits of the interdependent process. They develop weaker co-operation norms and do not develop collective strategies (Wageman). Similarly, hybrid tasks do not produce strong norms promoting effort and work motivation that occur in individual tasks (Wageman). They therefore tend to be stuck in the middle with unclear tasks, a lack of team processes and lower motivation norms.

The effects of task interdependence on team performance may depend on whether the interdependence is being initiated or received. Initiated task interdependence is the degree to which work flows from a particular job to another job. Received task interdependence is the extent that a person in a particular job is affected by work flow from other jobs (Kiggundu, 1981). Initiated task interdependence has been shown to be motivating, however received task interdependence may have the opposite effect (Kiggundu, 1981). Research shows that received task interdependence has a negative relationship with work satisfaction, internal motivation, growth satisfaction, and performance (Kiggundu, 1981). This may be due to the reliance on other team member's work and the corresponding decrease in autonomy.

Task interdependence may be related to effectiveness for several reasons. It may influence the motivational properties of the work (Campion et al. 1993), may enhance the sense of responsibility for each others' work (Kiggundu, 1983), and may enhance the reward value of team accomplishments (Shea & Guzzo, 1987b). Interdependent tasks can also be completed more efficiently in a team (Campion et al., 1996).

Wageman (1995) found that the greater the task interdependence of teams, the stronger the norms promoting co-operation, the higher the quality of team processes, and the greater the satisfaction with the work when compared with individual tasks and hybrid tasks.

Goal interdependence.

Team goals are the result of overt agreement among team members about what they wish to accomplish (Guzzo & Shea, 1992). Goal setting has been shown to be an effective motivational technique for individuals and is thought to be critical for effective teams (Campion et al., 1993). Several researchers have found that team goals can bring about high team performance, especially when feedback is available and the goals are clear and challenging (Zander, 1980; Zander & Medow, 1963).

Goal interdependence, that is goals that are closely linked, is critical to a team functioning effectively. If team members' goals conflict with the team and organisational goals, then a unified direction will be impossible and performance will suffer.

A study by Gowen (1986) highlights the importance of interdependent team and individual goals. Undergraduate students were tested while working on interdependent tasks. Compared to those with no goal setting, individual goals increased productivity by 19%, team goals increased productivity by 12%, and compatible team and individual goals increased productivity by 31%. These results highlight the improvements that can be obtained by employing complementary

individual and team goals. Organisations that employ only one goal type may not be making full use of the motivational potential of goal setting.

Interdependent feedback and rewards.

Interdependent feedback and rewards refers to rewarding the whole team for a team accomplishment with a reward that is important to the team members (Shea & Guzzo, 1987a). That is, interdependent rewards are those rewards given to an individual that depend on co-worker's performance (Wageman & Baker, 1997). Individual feedback and rewards must be linked to the team's performance in order to motivate team oriented behaviour (Campion et al., 1993).

Miller and Hamblin (1965) conducted an experiment on the effects of task interdependence and interdependent rewards using college students. Productivity was higher in high task interdependent situations when high reward interdependence existed than when team members were rewarded for individual performance. However, in low task interdependence situations, no significant relationship was found between productivity and reward interdependence.

Rosenbaum et al. (1980) found in a laboratory study that rewards that required competition between team members lowered productivity on interdependent tasks when compared to individual and interdependent rewards.

Mixed reward systems, for example partly co-operatively distributed and partly competitively distributed, also decrease productivity on interdependent tasks. Rosenbaum et al. (1980) found that even if only twenty percent of a team's reward was competitive and eighty percent co-operative, the team's productivity was impaired when compared to a wholly co-operative reward.

In contrast to the other findings that suggest a high degree of outcome interdependence is favourable, Wageman (1995) found that teams who receive individual outcomes have stronger norms promoting effort and significantly higher work motivation than teams with hybrid or team outcomes. This may be due to individual outcomes having a greater perceived direct relationship between team

member effort and outcome and consequently being more influential than either the hybrid or team designs.

3.2.3 Composition Variables

Composition variables refer to the nature and attributes of team members (Guzzo & Dickson, 1996). Most schools of thought emphasise the importance of compositional factors on the effectiveness of teams. Additionally, most models of team effectiveness include team composition variables. What is not clear however, is which composition variables are the most important in determining a team's effectiveness (Guzzo & Shea, 1992). In the integrated model, five composition dimensions are included. These are size, heterogeneity, flexibility, stability, and expertise.

Team size.

A substantial amount of research and discussion has centred on what is the optimal size of a team (see Bouchard, Barsaloux, and Drauden, 1974; Goodman et al., 1986; Olson, 1973; Ray and Bronstein, 1995). The general consensus is that for a team to be effective, it should be as small as possible without compromising its task performance.

Many authors follow a contingency approach in suggesting that team size should be determined by the function or task of the team (Dyer, 1995; Goodman et al., 1986; Ray and Bronstein, 1995). This is a conceptually sound argument as it is apparent that running a production line will need a different number of employees to a customer services team. This contingency on the task emphasises that not all teams should be one size.

A large amount of the research regarding the optimal size for a team is based on laboratory studies so the applicability of this research to work teams may be questionable (Sundstrom et al., 1990). However, many authors have made contributions to understanding how a team's size affects its effectiveness.

Large teams have been found to have many disadvantages. Katzenbach and Smith (1993) see large teams as having logistical problems such as organising a time and place to meet. Also, large numbers of people have trouble interacting constructively with less agreement on actionable specifics. Howell and Dipboye (1986) highlight other potential problems: "in addition to inhibiting individual performance, large group size has been associated with low job satisfaction, high absence rates, high turnover, and frequent labour disputes" (p.129).

Ray and Bronstein (1995) take a quantitative approach in considering the advantages of small teams. They studied the length of time different numbers of people require to understand each others styles and expectations and to work co-operatively together. Two people are expected to take around 65 hours over a six month period to accomplish this phase. One extra person, making a team of three, increases the time taken to 195 hours over the six month period. A four person team takes 390 hours and a five person team, 650 hours. Smaller teams will therefore mature faster suggesting they may require a shorter period of time to become effective (Ray & Bronstein).

Determining an optimal team size is problematic as many contingent factors are present. Some authors provide general guidelines. Most suggest that beyond 10-12 team members, the team will sacrifice effectiveness, will take a lot longer to mature, and will pay a higher price in 'interpersonal overheads' (Ray & Bronstein, 1995).

One problem with large teams is due to a basic social psychology principle, social loafing. Social loafing, the tendency to reduce individual effort as the size of the team increases, plays a part in the reduced effectiveness of large teams (Greenberg & Baron, 1995). Levine and Moreland (1990) believe that although larger groups are potentially more productive, co-ordination problems and motivation losses often prevent them from achieving that potential. Large teams have the effect of losing one's identity and not being able to identify the value of each team member's contribution. This is illustrated by Olson (1973). "When the number

of participants is large, the typical participant will know that his own efforts will probably not make much difference to the outcome and that he will be affected by the meeting's decision in much the same way no matter how much or how little effort he puts into studying the issue" (p.445). If all team members reduce their effort, the overall team performance will fall short of potential.

A contrasting view of anonymity and social loafing is presented by Franzoi (1996). Franzoi considers team members whose performance is not able to be distinguished from the team, a traditional requirement for social loafing. If evaluation apprehension causes social loafing, then on poorly learned tasks, the team members will perform better than if their performance could be identified. This is a relatively new perspective with the majority of the literature agreeing anonymity is an undesirable phenomenon.

With all the emphasis on avoiding teams being too large, little emphasis is placed on when a team is too small. Ray and Bronstein (1995) approach this topic by suggesting that size has a role in the stability of a team. Very small teams, 2-4 people, have less ability to adjust to temporary or permanent loss of members than large teams. Teams must also have the necessary skills and competencies to complete their tasks. This may be lacking if team size is considered above all else.

Heterogeneity.

Heterogeneity and homogeneity of team characteristics is an area of much debate. Some authors strongly advocate variety of team member characteristics while others argue just as strongly that team members should have homogeneous characteristics. The best combination probably lies in between these two extremes.

Advocates for homogeneity of team member characteristics stress the less conflictual team process, higher satisfaction, better interpersonal relations, and improved communication that are said to result from having similar team members (Pearce & Ravlin, 1987). Howell and Dipboye (1986) concur with this, "group members who are homogeneous with regard to their personalities, values, attitudes,

and backgrounds are more likely to work harmoniously than heterogeneous ones" (p.128).

However, several authors have suggested homogeneity of backgrounds and ideologies can lead to groupthink (see Miranda, 1994; Neck & Manz, 1994). "Such homogeneity leads to the production of fewer solutions and a narrow group focus while examining issues of concern and evaluating solutions" (Miranda, 1994, p.111). If groupthink does occur in these circumstances, no matter how harmoniously a homogeneous team may work, an element of diversity needs to be injected.

Heterogeneity of team member characteristics has received much attention in recent years partly due to increased diversity in the workplace. Heterogeneity is seen by its advocates as having several advantages. It enables teams to have a wide variety of skills and resources available to complete its task, and fosters innovation and creativity within the team (Pearce & Ravlin, 1987; Tjosvold, 1991). Dyer (1995) believes diverse teams have a greater opportunity to be more innovative, creative, and stimulating to the other team members than the 'friend' team (homogeneous team) that spends much of their time trying to keep good feelings intact. Although quite a cynical view, it raises an important issue; are diverse teams more task oriented than homogeneous teams? This could be the case if homogeneous teams try to keep the team process smooth rather than focusing on the assigned task.

However, diversity in team membership can sometimes hinder organisational performance (Stevens & Campion, 1994). As Tjosvold (1991) states, "diversity is two sided, it can stimulate creativity and growth or suspicion and decay" (p.156). Heterogeneity may prove difficult if team member differences are so great they cannot work together. For example, members of fundamentally opposed religions may have trouble working co-operatively.

One last determinant of the degree of heterogeneity needed in a team is the characteristics of the task (Howell & Dipboye, 1986). As with the optimal size of the team, the diversity needed in a team is heavily contingent on the task.

Heterogeneity is generally accepted to be superior when the task requirements are diverse and characterised by uncertainty (Goodman et al., 1986; Pearce & Ravlin, 1987). In contrast, the reduced conflict offered by homogeneous teams is suggested to be better in programmed decision making that does not require large amounts of creativity (Miner, 1992).

This study specifically tests the effects of the degree of heterogeneity on a team's effectiveness. Consequently, homogeneity is not explicitly considered in this study and neither is the effect of heterogeneity on team decision making.

Heterogeneity may increase the effectiveness of a team for several reasons. By having different areas of expertise, team members can learn from each other (Campion et al., 1996). Teams that are heterogeneous are also more likely to possess the skills needed for doing their job, especially if there is a large amount of task variety (Cohen, 1994). A study by Magjuka and Baldwin (1991) found heterogeneity to be a significant explanation for differences in effectiveness of employee involvement teams.

Aamodt and Kimbrough (1982) found trait heterogeneity to be positively associated with the quality of a group's decision in an experiment involving students. They caution however, that heterogeneity may only promote decision quality when problems are unstructured whereas homogeneity may be more effective in decisions that involve high degrees of routine (Aamodt & Kimbrough).

Flexibility.

Flexibility has many definitions in the literature (see Kozan (1982) for a discussion of these). One definition that explicitly considers flexibility in work groups is from Kozan. He defines flexibility as the team's ability to adjust its activities to changing conditions without these adjustments resulting in disorganisation. Disorganisation occurs when the team fails to make a smooth transition to a new set of operations (Kozan).

Flexibility in a team operates on two levels - morphogenetic flexibility and steady-state flexibility (Kozan, 1982). Morphogenetic flexibility occurs when a team makes structural changes, for example a permanent change of work procedures, communication patterns, or content of the team's jobs. Steady-state flexibility involves temporary adjustments in team activities. These adjustments do not replace existing team structures or processes, merely complement them. An example of this type of flexibility is reassigning team members for temporary periods of time to cover workload variances. Campion et al. (1993), and consequently the integrated model, concentrate on this type of steady-state flexibility in considering team effectiveness as it is the most visible example.

This 'filling in' flexibility in teams is gained by having team members cross-trained. Cross-training refers to having team members trained in all tasks that fall in their team's area of responsibility (Lawler, 1986).

Team member flexibility should enhance team effectiveness as team members can fill in for each other if needed. This reduces the need to have 'spare' team members in case of absences (Campion et al., 1993). Idle time is also reduced as fewer team members are needed to cover all jobs, again leading to lower staffing needs (Klein, 1994).

Team effectiveness is also enhanced by teams performing morphogenetic flexibility. Teams that can permanently adapt to changes, whether they be from external or internal sources, are more valuable to organisations than teams that cannot adapt.

The limited amount of research and the lack of an overall definition for flexibility means that flexibility has not been directly related to team effectiveness except in Campion et al. (1993, 1996 - see Table 2.1 for the significant relationships). This study hopes to provide more information on the relationship between team flexibility and effectiveness.

Stability.

Teams are not a static entity in an organisation. Team membership may change due to staff turnover, promotion, and reassignments. This can have a profound impact on the effectiveness of a team.

Stability refers to the continuity of team membership. Considerable time and effort is wasted if there is a large amount of turnover within a team (Cohen et al., 1994). In teams with large turnover, no performance norms are able to be formed and a large amount of time is spent introducing new team members to the technical and interpersonal requirements of the team (Cohen, 1994).

Conversely, if there is very little turnover in a team, the team may become stagnant and learn to use routine and safe work methods. Ziller (1965) found that teams with stable membership were less creative than those with changing membership. To be effective, a team's stability needs to be between these extremities.

No other empirical research, apart from Cohen et al. (1994), was found which specifically examined the relationship between a team's stability and its effectiveness. The literature that exists appears to be based primarily on common sense and hypothesising. This study will enable a more objective perspective on team stability and effectiveness to be gained.

Expertise.

The optimal amount of expertise team members should possess is a relatively clear area of team effectiveness. It has been well established that all other things being equal, teams with better individual task capability, abilities, and skills will perform better (Tannenbaum et al., 1992). In a way, the expertise that a team has is related to the homogeneity/heterogeneity debate as the more heterogeneous a team is, the more likely the range of expertise needed for a diverse task will be present.

An effective team will be one whose members possess complementary skills including task-relevant knowledge and skills (Cummings, 1981). These skills will be

along a variety of dimensions including technical and functional expertise, problem solving, decision making, and interpersonal skills (Cohen, 1994; Katzenbach & Smith, 1993).

Stevens and Campion (1994) have divided the KSA's (knowledge, skills, and abilities) that team members should posses into two categories, interpersonal and self-management. The interpersonal category includes conflict resolution, collaborative problem solving, and communication KSA's. Self-management KSA's are divided into goal setting and performance management, and planning and task co-ordination. Both interpersonal and self-management skills are seen as necessary for team members to possess in order for a team to perform effectively (Stevens & Campion).

Klein (1994) considers expertise related to the task. This is divided into three components: operational expertise, analytic knowledge, and integration expertise. Operational expertise is gained over time through repeatedly performing a task and learning through trial and error. Analytic knowledge is primarily developed through formal education and involves the application of scientific methods. This type of knowledge focuses on 'why' rather than 'how'. Integration expertise is the level of knowledge required to co-ordinate across functions and tasks. This does not necessarily require in-depth operational expertise or analytical knowledge, just enough to understand the basic processes (Klein). Klein argues these three types of expertise must all be present within a team in order for the team to effectively complete its task.

The literature shows that teams will be most effective if they are composed of members with all the skills necessary to complete the job and all the team members are expert performers in their respective skills. Tziner and Eden (1985) found teams that were wholly composed of high ability members performed better than 'expected' on highly interdependent tasks. Conversely, teams that were composed entirely of low ability members performed worse than 'expected'. Instead of sharing

around the expertise, Tziner and Eden suggest it should be concentrated to produce optimally effective teams.

Tziner and Eden's (1985) study conflicts with other research that shows teams with mixed levels of ability do better on purely intellectual tasks than teams with similar levels of ability (see Laughlin, Branch, and Johnson, 1969). This discrepancy may be due to the different type of tasks studied (Guzzo and Shea, 1992).

Teams necessitate a considerable increase in the amount of knowledge and skill team members are expected to have. If formal cross-training exists, team members are expected to learn all of the tasks in their team's area (Lawler, 1986). In addition to this, team members need interpersonal skills and skills in decision making and problem solving. All these skills need to be present if the team is to be effective.

3.2.4 Context Variables

A team's context is an integral part of many of the more recent team effectiveness models. In this integrated model, some variables are drawn from Lawler's (1986, 1992) work on employee involvement with the remainder from the team effectiveness models discussed previously. Contextual variables refer to the resources and environmental influences that are needed to make a team effective (Campion et al., 1996).

Lawler (1986, 1992) argues that contextual variables must complement each other. It is no good to have a lot of training in production techniques if there is no raw material to make the product. Similarly, having all the available resources will not produce a good product if no information is given to the team on its quality problems. This need for balance has important implications for the effectiveness of teams.

The contextual dimensions examined are: communication and co-operation between teams, training, resources, management support, and information.

Communication and co-operation between teams.

Nearly all teams in an organisation are bound together in some way. This may be due to sharing team members or because they are embedded in the same social network (Levine & Moreland, 1990). Teams may intervene in each other's business because it directly or indirectly affects their own team (Levine & Moreland).

Conflict between work teams in organisations is an everyday occurrence and can happen for many reasons. Teams often believe their goals are in competition with other team's goals (Tjosvold, 1986). This competition may be for scarce resources such as materials, money, space, personnel, and prestige (Guzzo & Shea, 1992). To be effective as a whole, an organisation needs to minimise, but not completely eliminate, the conflict and competition between teams. Conflict and competition can have a positive affect by increasing involvement in important issues, providing an outlet for hostility, increasing group productivity, and increasing motivation (Ellis & Fisher, 1994; Wilson, 1996). However, if competition and conflict end up being the primary focus of the teams, effectiveness will suffer.

Teams that co-operate with each other develop a sense of trust that they can rely on other teams. They also communicate openly and use their abilities to help each other (Tjosvold, 1986). Having co-operative team goals is more productive in decision making, problem solving, combining ideas from different perspectives, using shared resources, and co-ordinating effort (Tjosvold, 1986).

Co-operation between teams can exist at several different levels. Levine and Moreland (1990) see that teams may indirectly co-operate by one team imitating another, through importing work processes from it. Indirect co-operation may also exist if teams use others for social comparison. Direct co-operation may be in the form of exchanging valuable resources, forming alliances to attain common goals, or merging to form a new team (Levine & Moreland).

One way to increase the amount of co-operation and communication between teams in an organisation is to focus on the organisation's super-ordinate goal (Guzzo

& Shea, 1992). This is the goal of the organisation that all teams should be aiming to achieve. By focusing on this, teams may see the benefits of unifying.

Another way to enhance inter-team co-operation is to develop procedures for several teams and their managers to discuss issues and work together (Tjosvold, 1986). Team members that are skilled in solving problems and managing conflicts will also aid inter-team co-operation (Tjosvold, 1986).

Co-operative goals are critical for quality customer service (Tjosvold & Tjosvold, 1994). Tjosvold (1988) conducted a study on departments with common goals that were co-operative, competitive, and independent. This study showed that co-operative goals serve customers better, increase confidence among members about their performance and the capability of the departments to work together in the future, solve customer problems more easily, and use materials and time more efficiently.

Communication and co-operation between teams is considered a contextual variable as it is often the domain of management (Campion et al., 1993). Managers that supervise team boundaries and externally integrate teams into the whole organisational framework have been shown to enhance effectiveness (Brett & Rognes, 1986; Cummings, 1978; Sundstrom et al., 1990). However, there is little other evidence of a relationship between inter-team relations and team effectiveness (Guzzo & Shea, 1992).

Training.

Team training and team building, one specific type of training, can focus on a number of different facets of team life. Tannenbaum et al. (1992) in a review of team building literature, identified four basic approaches to team building: goal setting, interpersonal, role clarification, and problem solving. Each of these approaches is used to achieve different results and solve different problems.

Team training can also be differentiated on the basis of whether team skills or task skills are being taught. A balance of both types of skills is needed to produce an

effective team. Training often includes team philosophy, team decision making, and interpersonal skills, along with technical knowledge (Campion et al., 1993). Team members need to know not only how to do their job but also how to work together and co-ordinate their actions as a team.

Recent literature is divided on the effectiveness of team training. Methodological problems in researching team building effectiveness have hindered any firm conclusions on the benefits associated with team building (Tannenbaum et al., 1992). In general, team building appears to have a positive influence on members' attitudes and perceptions but less of an effect on performance (Tannenbaum et al.). Training may be more effective when it is part of a larger overall strategy for improvement.

Resources.

Teams need resources to fulfil their goals. These resources may take many forms including labour, money, equipment, space, tools, and materials (Cohen, 1994; Hackman, 1987). Hackman and Walton (1986) see resources as being one of the three most important determinants of team effectiveness.

Several team effectiveness models include resources as one of the preconditions to team effectiveness (see Gladstein, 1984; Hackman, 1987; Nieva, Fleishman, & Rieck, 1978; Tannenbaum et al., 1992). The resources used must be of good quality and be available in time so as not to create inefficiencies.

Teams may be well designed and supported in an organisation, but if they lack the resources they need to do the job well and on time, then the team will never reach full effectiveness.

Management support.

The role of a manager in a team can differ depending on the type of team. A manager's roles include both enabling their team to function internally and integrating the team with the rest of the organisation.

Managers need to ensure their team operates in a supportive environment that encourages effective decision making (Recardo, Wade, Mention, & Jolly, 1996). The manager also needs to act as a facilitator to enable teams to reach effective decisions.

Managers need to help teams members develop trust for the manager (Recardo, et al., 1996). For this to occur, managers need to demonstrate integrity, open communication, fairness, and consistency of behaviours (Recardo et al.).

Creating and communicating a clear vision is a further role managers need to play. To do this, they need to understand the needs of their customers and other stakeholders, comprehend the political, social, economic, and technological trends that are occurring, and have a good understanding of their competitors (Recardo et al., 1996). Managers then need to help the team translate the organisational vision into clear actionable team goals.

Managers must act as role models for the team by being committed and abiding by behaviours that are consistent and in the best interests of the team (Recardo et al., 1996). Self promoting behaviours are damaging to the team's well being.

A major role managers play is to control the interactions between their team and other parts of the organisation. This includes: ensuring effective communication both vertically and horizontally, linking different work teams, ensuring the necessary equipment and supplies are available, resolving conflicts with other teams and managers, and integrating information from all over the organisation for the team to consider (see Recardo et al. (1996) for a full description of boundary management activities).

A lack of management support may cause teams to fail (Lawler, 1992; Moran, Musselwhite, & Zenger, 1996). Although it appears logical that teams need management support to be effective, little research has been conducted in this area. The only studies that consider the relationship between managerial support and team effectiveness are Campion et al. (1993, 1996). The significant relationships with the effectiveness criteria were shown earlier (see Table 2.1).

Information.

Lawler (1986) sees information as a source of power and effectiveness in organisational co-ordination and co-operation. As such, it is a very important part of employee participation and involvement. Teams require information about work processes, quality, customers, business performance, competitors, and organisational changes (Cohen et al., 1994).

Information needs to flow throughout the whole organisation. Downward information enables teams to be fully informed about their work and their organisation, while upward information about improvement ideas, performance, and employee attitudes is equally as important to utilise team members' innovations (Lawler, 1986). Horizontal information enables teams to share ideas while customer/supplier information allows direct feedback to the team (Lawler, 1992).

Hackman (1987) sees the information system of an organisation as critical to a team's ability to plan and execute an appropriate performance strategy. Information for this purpose includes: the task requirements and any constraints that may be present, the material resources available for use, the final customers for the product or service, and what standards will be employed to assess the product's or service's adequacy.

The amount of information a team needs depends on its level of autonomy and participation in decision making (Hackman, 1987). To allow a team to participate in decision making without the necessary information would prove disastrous to both the team and the organisation.

Magjuka and Baldwin (1991) found a positive association between access to information and effectiveness in employee involvement teams. Effectiveness was measured by a combination of participant and supervisor's ratings of team effectiveness. The study also confirmed employees feel that open and unrestricted access to information about operations improves their decision making effectiveness. In agreement with Hackman (1987), information was shown to be a critical resource for teams.

In an organisation, information flow can be helped or hindered by the methods used to communicate the information. Organisations should provide formal methods of communication to enable teams to have ready access to required information. However, the information needed may not be obtainable. The data may not exist, may be too costly to obtain, or may be politically sensitive in the organisation. In cases such as these, Hackman (1987) believes teams must be made aware that the information is not available, so a decision can be reached in light of this. Team members may also be more tolerant when told of a lack of information than if they believe the organisation is withholding information.

3.2.5 Process Variables

Many models of work team effectiveness include team process as a variable (e.g. Gladstein, 1984; Hackman, 1987). Process refers to the interaction among team members, including the exchange of information, influence attempts, leadership efforts, and expressions of approval or disapproval by other team members (Guzzo & Shea, 1992). Process is typically included in team effectiveness models in the input-process-output framework. However, in this study, process is included as an input variable as Cohen (1994) believes team process may influence team design.

The process dimensions included in the integrated model are: norms, potency, innovation, social support, co-operation and communication within the team, and workload sharing.

Team norms.

Norms are very important in all work situations but are especially important in the work team environment. Team norms can play a large role in determining whether the team will be productive or not (Feldham, 1987). Norms can be defined as "generally agreed-on informal rules that guide group members' behavior" (Greenberg & Baron, 1995, p.293). Norms serve as standards of behaviour against which the team members are judged, and those who deviate from the norms of the

team are likely to find both subtle and overt pressures bought against them by other team members (Howell & Dipboye, 1986). Team norms can be a powerful regulatory force and it is important that team norms are in congruence with the organisation's objectives.

Norms are formed because they reflect behaviour that is significant to the team (Feldham, 1987; Miner, 1992). Norms are also formed to facilitate the team's survival, to simplify or standardise the expected behaviour of team members, to avoid team embarrassment of interpersonal problems, and to express the central values of the team, therefore clarifying what is distinctive about the team's identity (Feldham; Miner). Generally, norms are developed to make the team's life longer and easier.

The development of norms can occur in a number of different ways. They can develop through explicit statements made by supervisors or co-workers, through critical events in the team's history, through the first patterns of behaviour of the team (the primacy effect), and can carry over from behaviour in previous situations (Feldham, 1987). Levine and Moreland (1990) also believe that team norms can result from the surrounding social environment.

Team norms that are formed can include a variety of aspects of team life. They can mandate the clothing of its members, how hard team members should work, how productive team members should be, how opposition teams should be treated, and a multitude of other aspects (Greenberg & Baron, 1995). It is critical that these norms be a positive influence or the team's effectiveness will be greatly hindered.

Argyle (1972) sees the acceptance of team norms as progressing through two separate phases, compliance and internalisation. In compliance, team members abide by the team's norms to avoid rejection by the team. Norms then progress to the internalisation phase where team members abide by the rules whether or not other team members can observe them. At this stage, it is believed that the team is right so the pressure comes from inside the individuals. Rothwell (1995) concurs with this

but uses the terms 'expedient conformity' and 'private acceptance' to name the two phases.

A related concept considered in this study is norm crystallisation. A norm is well crystallised when there is high agreement among team members about the amount of approval or disapproval associated with particular behaviours (Jackson, 1965). The greater the crystallisation, the better the team can control members' behaviour (Cohen, 1994). However, having crystallised norms does not necessarily mean a team will be effective. Crystallisation does not refer to the content of the norms only the amount of agreement about them (Cohen). A team may have well crystallised norms that are detrimental to their performance.

The research regarding team norms is relatively in agreement. Since the famous Hawthorne Bank Wiring Room experiments (Roethlisberger & Dickson, 1939), no one would deny the existence and strength of norms in a work environment. Organisations need to ensure these norms contribute towards the team being effective.

Potency.

This dimension refers to the belief amongst team members that their team can be effective and has the capability to perform the job (Bandura, 1982; Guzzo et al., 1993). Potency comes primarily from Guzzo and Shea's work but is similar to Hackman's (1987) notion of team spirit.

Shea and Guzzo (1987a) state that team members make an appraisal about their ability to do the job based on their training, the resources needed, feedback about team performance, skills the team members have, and the performance history of both the team and the organisation. Shea and Guzzo (1987a) believe there is a reciprocal relationship between potency and performance. Successful performances in the past are likely to give the team the belief that they will also be successful in the future. A team that believes it will do a job well, is more likely to than a team that believes it will fail (Shea & Guzzo, 1987a).

Several influences determine the level of individual efficacy, an individual's belief in their ability to perform a job, and are also thought to determine the level of team efficacy (potency). These influences are: successful job experiences, social modelling, verbal encouragement, and the appropriate interpretation of stressful experiences (Bandura, 1986).

Successful job experiences lead to an increase in team members' perceptions that they can perform their jobs (May & Schwoerer, 1994). This can then lead to a spiral of increasing success for the team (Hackman, 1990). To gain this confidence, team members must initially be exposed to challenging activities that do not overwhelm them (May & Schwoerer).

Social modelling refers to team members learning from other team members about how to perform their jobs (May & Schwoerer, 1994). If the role model team members can perform their task effectively, the learning team members will feel confident that they too can perform the job effectively. Team members that are chosen to be role models are likely to be close in terms of age and other personal characteristics to the team member wanting to learn (May & Schwoerer).

Verbal encouragement helps team efficacy by encouraging team members to believe they can do the job (May & Schwoerer, 1994). The credibility, expertise, trustworthiness, and prestige of the person who gives the encouragement, all impact on the degree to which a team member is motivated by the information (May & Schwoerer).

The interpretation of stressful events is another determinant of the level of team potency. If team members believe stressful events are likely to be a cause of failure, then the team will have a lower level of team potency than a team who sees a stressful event as a challenge (May & Schwoerer, 1994).

Guzzo et al. (1993) hypothesise that factors influencing potency can be divided into three categories - factors external to the group, factors internal to the group, and group effectiveness. External factors suggested to influence potency are: resources, system goals, vicarious learning, rewards, verbal persuasion, leadership, and

reputation. Internal factors are: group goals and size, members' abilities, skills, experience, knowledge, and physiological state. Potency is then hypothesised to be reciprocally related to general group effectiveness. These factors include many of Bandura's (1986) determinants of individual efficacy. Guzzo et al.'s model is shown in Figure 3.3.

The degree of potency a team has may determine how much effort team members expend on their task and how long they will persevere when faced with obstacles (May & Schwoerer, 1994). Teams with a high degree of potency may also set higher goals than other teams as they believe they have control over the outcomes (May & Schwoerer). Hackman (1987) has argued that teams with team spirit, or potency, are more committed and are willing to work harder for their team.

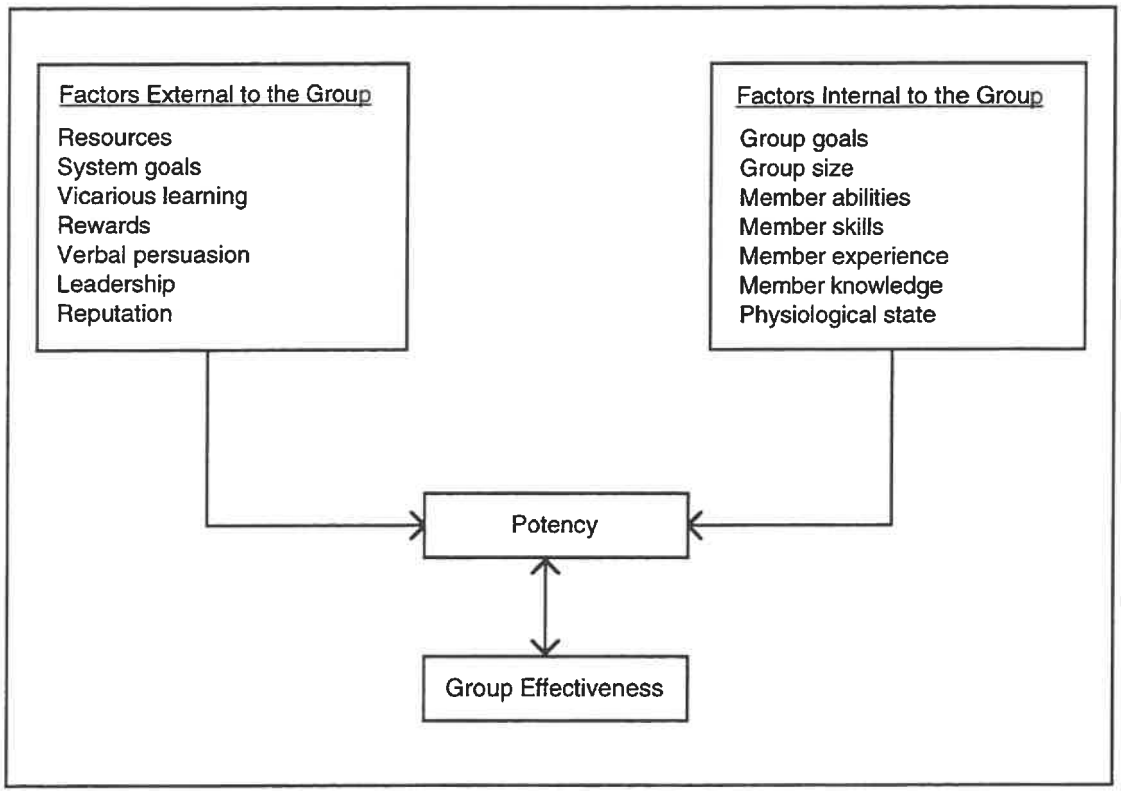

Figure 3.3: Guzzo, Yost, Campbell, and Shea's (1993) Conceptual Model of the Determinants of Potency.

Studies have shown that potency is related to several measures of team effectiveness (see Cohen & Denison, 1990; Larson & LaFasto, 1989). There is also

evidence that efficacious beliefs are related to performance in a variety of settings (e.g. Gist, Schwoerer, & Rosen, 1989; Lee, 1988).

Innovation.

Innovation can be defined in many ways. Farr and Ford (1990) describe innovation as "the intentional introduction within one's work role of new and useful ideas, processes, products, or procedures" (p.63). Effective teams are those that can adapt their working methods to come up with new and better ways of doing their tasks.

Teams offer several advantages in innovation over individuals. Teams provide a 'safe' forum for members to share their ideas, thoughts, and practices; teams can more efficiently monitor the environment for new technologies or practices; and teams can also test ideas more thoroughly and gain more commitment to new innovations (Tjosvold, 1986).

Several external influences may affect how innovative a work team is. These include: the organisation's vision for innovation, a safe and supportive organisational climate, a climate for excellence, and the organisational norms and support for innovation (West, 1990). However, there are also internal factors that affect how innovative a team will be. A democratic, collaborative leadership style with moderate control over team members has been shown to be a positive influence on innovativeness, as has team member heterogeneity (Anderson & King, 1993). An organic structure whereby teams use integrative team-based approaches to tasks, have blurred boundaries of authority, and have professional commitment, has also been found to be significantly, positively related to the innovativeness of team tasks as perceived by team members and their managers (Meadows, 1980). Innovativeness was defined in this study as the need to find new things to do and new ways of doing things (Meadows).

Anderson and King (1993) found an inverse relationship between team longevity and innovativeness. If an organisation has very mature teams, team members may need to be rotated to encourage innovation.

Teams that are innovative continually improve their work processes, products, and procedures. In doing this, both the team and the organisation are continually moving forward.

Although extensive research has been conducted on the antecedents of team innovation, no research, other than Cohen et al. (1994), has been found that considers how a team's innovation level influences its effectiveness. Intuitively, teams with innovative processes and products would be expected to be considered effective. However, this will be dependent both on the definition of effectiveness used and the organisation's desire for innovativeness.

Social support.

Social support involves team members feeling connected to other people, having meaningful relationships, being able to rely on other team members, and being able to turn to other team members for assistance (Johnson & Johnson, 1989). This social support provides the care and information necessary to deal with stress, to maintain a sense of well-being and self-esteem, and to be psychologically and physically well (Kirmeyer & Lin, 1987).

Social support may enhance effectiveness by encouraging members to help each other and by allowing positive social interaction (Campion et al., 1993). Kellett (1993) found that effective teams actively promote work related support. For example, during difficult assignments, team members were able to rely on their colleagues for help and assistance. Supportiveness was positively associated with team ratings of satisfaction and performance in Gladstein's (1984) study.

Communication and co-operation within the team.

In the laboratory, communication and co-operation within the team have been shown to influence effectiveness and are considered in several current models of team effectiveness (e.g. Gladstein, 1984; Tannenbaum et al., 1992).

Team members that co-operate with each other realise their goals are positively related so that if one person reaches their goal, others also do (Tjosvold & Tjosvold, 1994). Co-operative work integrates self-interests to achieve mutual goals. Under conditions of co-operation, team members want other members to act effectively and expect others want them to act effectively because it is in everyone's best interest to do so (Tjosvold & Tjosvold).

Co-operative team members share more information, take each other's perspective, communicate and influence effectively, exchange resources, assist and support each other, discuss opposing ideas openly, use higher quality reasoning, and manage conflicts more constructively than teams that are competition or independently based (Deutsch, 1990; Johnson & Johnson, 1989; Johnson, Maruyama, Johnson, Nelson, & Skon, 1981). These behaviours result in task completion, problem solving, reduced stress, strengthened work relationships, and confidence in future collaboration (Tjosvold & Tjosvold, 1994).

Communication within teams is closely related to the degree of co-operation between team members. Team members that co-operate are more likely to share information with each other. It is especially important to share expertise, which is needed for cross-training and decision making (Cohen, 1994). Communication needs to be open within the team to make the best use of team members' variety of expertise.

Robbins, Waters-Marsh, Cacioppe, and Millett (1994) believe communication serves four functions in a team. It controls members' behaviour, fosters motivation, is a means for emotional expression, and transmits information. These four functions are equally important and for a team to be effective, all four need to exist (Robbins et al.). Berry and Houston (1993) believe communication within a team also reflects

what else is happening in the team. It reflects personal motives, goals, decision procedures, and social influence processes.

Although many books and articles are written on the subject of group communication, very few specifically consider the relationship between communication and team effectiveness. One study that does consider this relationship to a degree is O'Reilly and Roberts (1977). They found information accuracy and communication were strongly related to group effectiveness, measured as an index of responses on questions relating to team productivity, adaptability, and flexibility. This test of the integrated model will aim to see if team communication does have a significant impact on team effectiveness, thus justifying the time and effort spent studying team communication.

Workload sharing.

Workload sharing enhances team effectiveness by preventing social loafing and free-rider effects (Campion et al., 1993). Effectiveness is enhanced by ensuring all team members contribute equally to a task to the best of their ability.

To aid workload sharing, team members should feel that their contribution to the team's performance is both important and identifiable. They should also feel they have control over the task outcomes and that they will be subject to evaluation (Wageman & Baker, 1997). Social loafing occurs when team members believe they are unidentifiable within the team (Kerr & Bruun, 1983). A task that is intrinsically meaningful will help reduce social loafing and increase workload sharing (Guzzo & Shea, 1992). A strong perceived relationship between a team member's performance and their rewards also helps encourage workload sharing.

The free-rider effect occurs when team members expend decreased amounts of effort and merely go through the team work motions (Kerr & Bruun, 1983). Wageman and Baker (1997) suggest that free-riding is likely to occur in teams that do not work in the same location or that meet infrequently. Kerr and Bruun believe free-riding is linked to the perceived dispensability of a team member's effort. A

team member that believes their effort is not important for the team to be successful, is likely to leave it to the other team members to get the job done.

The dispensability of a team member's effort depends on the type of task (Kerr & Bruun, 1983). Disjunctive tasks, those that are determined by the best member, enable low ability members to free-ride whereas conjunctive tasks, those determined by the worst member, allow high ability team members to reduce effort.

Zander (1977) believes that team motivation is more likely to develop if the team creates a product that can be attributed to the team as a whole rather than to one particular person.

Workload sharing has not been linked to team effectiveness in any literature except Campion et al. (1993, 1996) where it was significantly related to several effectiveness criteria at the .05 significance level (see Table 2.1 for these relationships). Workload sharing has an intuitive relationship with team effectiveness as teams that have members contributing to the best of their ability should be more effective than teams with members who engage in social loafing or free-riding. This study, using the integrated model, will further test this relationship.

3.2.6 Effectiveness Criteria

Effectiveness is a difficult construct to define. Most team effectiveness researchers use multidimensional definitions, but do not agree as to what specific criteria should be used (Sundstrom et al., 1990).

Generally, team effectiveness models use criteria that include both objective and subjective data. That is, they focus both on productivity and member satisfaction, recognising the socio-technical aspects of work design.

In this study, effectiveness is also defined multidimensionally. The effectiveness criteria of Cohen (1994) have been integrated with those of Campion et al. (1993) to produce four criteria of effectiveness. Performance, quality of work life, and withdrawal behaviour are all considered from a team member's perspective along with a managerial perception of team effectiveness. This multidimensional

approach reduces bias and enables the effectiveness of teams to be judged more comprehensively.

Performance.

The performance dimension represents what may be considered the traditional definition of effectiveness. The integrated model comprises of four areas of performance - costs, productivity, quality, and safety. Cohen (1994) used the first three of these measures in her model. These are seen by Cohen as fundamental indicators of effectiveness that can be applied across a variety of organisational settings. Safety was added to these three indicators to replicate the effectiveness criteria used in Cohen et al. (1994).

These performance criteria can be measured by either objective or subjective techniques. In many teams, no objective measurements of performance are possible due to the nature of the work or the nature of the organisation. For example, knowledge workers have little measurable output that can capture the nature of their thought processes. In cases such as these, the perceptions of a person who is knowledgeable about the team can provide a reasonable approximation to objective measurements. In fact, Hackman (1987) argues that the success of a team in a given organisational context may depend more on how key stakeholders assess its performance than objective measurements.

Performance in this study is measured by considering the team's control of costs and improvements in productivity, quality, and safety from the perspective of the team members.

Quality of work life.

The quality of work life dimension is comprised of a number of sub-dimensions. These are: trust in management, organisational commitment, and job, team, social, and growth opportunity satisfaction. This aims to get an overall view of the team members' satisfaction with the entire work concept.

Satisfaction is considered an important dimension of effectiveness for several reasons. An employee's satisfaction with his/her job can have a large impact on the functioning of an organisation. An organisation with a dissatisfied work force will have greater employee turnover, absenteeism, and possibly a lesser degree of productivity (Lawler, 1983), all of which can be very costly.

Trust in management is rarely included by other studies in this characteristic. Cohen (1994) includes trust in management as it reflects employee attitudes to their quality of work life.

Organisational commitment is also important. "Commitment reflects an individual's feeling of identification with and attachment to the group's or organization's goals or task" (Bettenhausen, 1991, p.364). Commitment was found to negatively correlate with unexcused absenteeism in Zaccaro and Collins' (1988) study.

As shown by Lawler (1983) and Zaccaro and Collins (1988) and hypothesised by Cohen (1994), quality of work life has a negative relationship with withdrawal behaviours. This relationship is also hypothesised to exist in the integrated model of team effectiveness.

Withdrawal behaviour.

Turnover is another effectiveness criteria that is important in all organisational settings (Cohen, 1994). It can be very costly to organisations in the long term.

Turnover is expensive for organisations as a team member that leaves takes a part of the team's memory with them (Ziller, 1965). New team members then need to be trained and socialised into the team. Turnover is also associated with time and money spent recruiting new team members, increased organisational disruption, and the possible demoralisation of remaining employees (Steers & Porter, 1987).

Although turnover is very expensive for organisations, teams that have little turnover can become stale and lack innovation (Anderson & King, 1993). Without new team members entering the team with new ideas, teams tend to develop

standardised work methods and procedures that involve a large degree of routine and precedent (Katz, 1982). In doing this, teams do not progress any further or develop better work methods. Turnover also may be positive if the team members that leave are burnt out or stale in the job and are replaced by fresh, new members (Steers & Porter, 1987). Similarly, turnover of team members who have entrenched conflicts in the organisation may also be advantageous (Steers & Porter).

Determining the best level of turnover may be difficult to ascertain but will be contingent on the team and the organisation.

Comparable turnover data were not available for the three organisations involved in this study, so intention to leave was used as a substitute measure. Intention to leave has consistently been shown to be a good predictor of actual turnover (Steel & Ovalle, 1984; Tett & Meyer, 1993). In Steel and Ovalle's meta-analysis, intention to leave was more predictive of actual turnover than affective variables, for example, organisational commitment. In Tett and Meyer's meta-analysis, intention to leave was also shown to be a stronger predictor of actual turnover than job satisfaction and organisational commitment.

However, some authors question the validity and reliability of using intention to leave as a substitute measure for actual turnover. Kirschenbaum and Weisberg (1990) studied the antecedents of both constructs. They concluded that the constructs have different antecedents and are therefore very different, so intention to leave should not be used as a substitute for actual turnover.

Conversely, Steers and Mowday (1987) believe the mixed support for the relationship between intention to leave and actual turnover is due to inadequate methodology rather than an absence of the relationship.

Due to the absence of a measure of actual turnover, intention to leave will be used in this study as a substitute. However, the criticisms of the practice will be noted, and may place conclusions regarding this characteristic in doubt.

Managerial judgement.

Managerial judgements of the team's effectiveness are used to reduce the reliance on data from team members. Cohen (1994) believes that evaluations of a team's performance from both insiders and outsiders gives the most comprehensive judgement. This occurs as employees and managers have different perspectives and complementary sources of information (Lawler, 1986).

Managerial judgement about the team's quality, customer service, productivity, efficiency, co-operation with non team members, innovation, and safety will be used to assess the team's effectiveness from the view of the organisation's management.

3.3 Overview of the Integrated Model

The literature reviewed on the team effectiveness models and the components of the integrated model is not exhaustive. However, it does provide an overall picture of the direction that team effectiveness research is taking. It must be remembered that although the variables were discussed separately, they are closely linked. These relationships become apparent when testing the effectiveness models.

The integrated model does not include all of the relationships discussed in the literature review. To test the model it is necessary to keep the relationships as simple as possible. Therefore although other relationships may exist they are disregarded in favour of parsimony. Other possible relationships are also omitted to keep the structure similar to Cohen's (1994) and Campion et al.'s (1993) models. The results from the integrated model can then be directly tested against these previous models.

The objectives of this study are:

- To develop an integrated model of team effectiveness thus extending two existing theoretical team effectiveness models,
- To assess whether the team characteristics examined in the integrated model are related to team effectiveness,

- To ascertain if the models this study is based on can be applied with similar results in New Zealand, thus extending our knowledge of New Zealand teams.

The methods employed in this study will now be discussed along with the results obtained.

4. Method

This chapter discusses the methods used in this study to obtain and analyse the data. The sample, data measurement and gathering techniques, and the statistical techniques used for analysing the data are all presented.

The following chapter presents the results of the study along with a discussion on the demographic characteristics of the sample.

4.1 Sample

Three organisations with team-based structures were approached to participate in this study. These were a large insurance organisation based in Wellington, an Auckland based brewery, and a nation-wide supermarket chain. Six different locations were included from the supermarket chain giving eight locations in total. The organisations were recruited for this study initially through phone conversations and then presenting research proposals either in person or by post. The response rates from the organisations were 36.8%, 2.7%, and 9.8%.

This study was conducted on general teams as New Zealand has few truly self managed teams. In their 1995 study, KPMG found from 142 organisations, only 19% of the teams were self managed while 51% were led by a team leader. The rest of the teams were supervisor led or some other method was used e.g. external consultant.

The total sample consisted of 79 teams and 1081 team members. A team response rate (the percentage of teams with at least one respondent) of 49.4% and individual response rate of 10.5% were obtained from this sample. Questionnaires were examined for missing data and low team response rates. These questionnaires were eliminated from the study to maintain the integrity and quality of the data. The final usable data came from 22 teams and 91 people, a response rate of 27.8% and 8.4% respectively.

75 managers were sampled for the 79 teams. These managers were selected on the basis that they were directly responsible for the team on which they completed the questionnaire. They therefore had an in-depth knowledge about the performance of the team. Some managers were responsible for more than one team and some teams had more than one manager. Where a team had more than one manager, the managers' ratings were averaged for each question and the average value used. 32 questionnaires were returned from the 82 sent out for a return rate of 39.0%. The usable return rate for the 79 teams was 17.7%. This low usable return rate occurred as several of the managers that responded did not have corresponding responses from their team members .

Return rates for both the team members' and managers' questionnaires were disappointingly low. The exact reasons for the low return rates are not known. Some possible reasons may be a lack of time, as no time off work was provided to complete the questionnaire, low organisational support for the study, and a general unwillingness to complete questionnaires. The low response rate does have unfortunate consequences for the statistical techniques used and the generalisability of the study. These consequences will be discussed in subsequent chapters.

4.2 Measurement Techniques

The data measurement techniques used in this study were two questionnaires, one for team members and one for team managers.

The team member's questionnaire consisted of 102 items integrated from the questionnaires used in Campion et al. (1993) and Cohen et al. (1994). This questionnaire covered the five independent characteristics in the model: task design, interdependence, composition, context, and process. Also included were the three dependent characteristics: the team members' perceptions of performance, quality of work life, and intention to leave. Questions largely remained the same as the original questions although some wording needed to be altered to remove American terminology. Questions that were reverse scored in the original studies were also

reverse scored in this questionnaire. Where one construct was covered by both authors, a judgement call was made and the questions were selected so as to gain a full coverage of the construct.

Withdrawal behaviours were ascertained by a questionnaire item measuring intent to leave. Comparable turnover data were not available for the three organisations, so intention to leave was used as a substitute measure.

A minimal amount of biographical data were requested to reduce the size of the questionnaire. The data gathered enabled comparison with the respondents of the other studies. Demographics included were age, gender, education level, and organisational, job, and team tenure. A copy of the team member's questionnaire and the dimensions can be found in Appendix A.

The manager's questionnaire consisted of 16 items measuring the seven dimensions that comprised the managerial judgement characteristic of the model. Managers were not asked to rate the characteristics of the team as Campion et al. (1996) found that team members' perceptions of team characteristics were more predictive than managers' perceptions. The seven dimensions measured were based on Campion et al. (1993) although the questions used were developed independently. Questions were drawn from a variety of sources including Cohen et al. (1994), and definitions from the literature. A copy of the manager's questionnaire and the dimensions used are in Appendix B.

In both questionnaires, a seven point Likert scale was used with 1 being strongly agree and 7 strongly disagree. A seven point scale was favoured over the more traditional five point scale to allow for more variety in response. Bordens and Abbott (1991) suggest that respondents often avoid using the end points of scales. Thus by using a seven point scale, five usable points existed.

Questions in both questionnaires were randomly ordered within the characteristics to avoid systematic answering. Each section of the questionnaire corresponded directly with a characteristic in the model to enable easier analysis.

4.3 Procedures

Before any contact was made with the participants of the study, approval from the Massey University Human Ethics Committee was gained.

After gaining consent from the participating organisations to conduct the study, information sheets and questionnaires were sent to Human Resource personnel. These personnel distributed the information sheets and questionnaires to all team members and managers to avoid any possible bias. A copy of the Information Sheet can be found in Appendix C.

The information sheet clearly explained the purpose of the study, who the researcher was, and what participants would be required to do. The ethical details of the study were also explained. A freepost envelope was included with the information sheet and questionnaire to enable participants to return the questionnaire anonymously. Participants were instructed not to put their name on the questionnaire to ensure anonymity.

The managers of the teams were provided with questionnaires and information sheets in the same manner as the team members, along with freepost envelopes for the return of the questionnaires.

To allow team member and manager questionnaires to be matched to a team, a coding system was used. This system took a similar form to the one used by Cohen et al. (1994). Each participant was asked to identify their team from a list of team descriptions. Participants only received a choice of team descriptions from their organisation to maintain organisational anonymity. The descriptions of the teams were assigned a code that respondents were asked to write on the first page of the questionnaire. The questionnaires were grouped using the codes. The team descriptions were obtained through Human Resource or Management staff in each of the organisations who provided descriptions that would be easily recognisable to participants. Some examples of these were department names, shift names, product group names, or combinations of these.

Two weeks after the questionnaires were distributed, a brief follow up letter was distributed by Human Resource personnel to remind participants to complete the questionnaire. This reminder was sent to all participants regardless of whether they had returned the questionnaire, as responses could not be linked to the participants. An exception from this was one team who had a 100% return rate. A copy of the follow up letter is in Appendix D.

At the conclusion of the study, team members, their managers, and their organisations were provided with a summary of the results, including details of how they pertained to each of the organisations.

4.4 Statistical Analysis

Statistical analysis was completed on an IBM compatible computer running SAS® for Windows version 6.11. A variety of univariate and multivariate tests were performed.

Teams were considered to have sufficient data for inclusion in the study if two or more members responded to the questionnaire (Cohen and Ledford, 1994). These teams were then examined to ensure team members had the same team in mind when completing the questionnaire. As in Cohen et al. (1994), the team members' perspective on the number of members in their team were compared. Any team members who believed their team had more or fewer members than the mean plus or minus two standard deviations were removed from the study on the grounds they were responding about a different team.

To increase the amount of usable data, two data sets were established. The first included all respondents that had corresponding managerial judgement data and matched the other criteria for inclusion. There were 55 respondents in this data set. The second data set included 91 respondents that matched the inclusion criteria but didn't necessarily have corresponding managerial judgement data. The analysis was performed on both data sets. Unless stated otherwise, all comments refer to the full set of 91 respondents.

Data were checked for input errors via frequency tables and examination of means and standard deviations. The data were then inspected for normality, skewness, kurtosis, outliers, homoscedasticity, multicollinearity, and linearity using normal plots, skewness and kurtosis measures, correlation matrices, and scatter plots. This data screening was conducted at both the individual question level and with the questions averaged into their corresponding dimensions.

Missing values were assigned the mean value of the team's data if less than 5% of respondents for a particular question had missing data. This is a more conservative method than 'estimating' a value but less conservative than using the total mean (Tabachnick & Fidell, 1989). No questions had more than 5% of respondents with missing values.

Principal components analysis was conducted on all of the questions hypothesised to measure each characteristic, for example, the eighteen task design questions. The principal component scores from the first eigenvector were then considered to be the scores for each respondent for that characteristic.

Path analysis was then performed using the SAS® System's CALIS procedure. The analysis was performed on a correlation matrix using the maximum likelihood method of estimation. Maximum likelihood estimation has been shown to perform reasonably well in several non-optimal conditions, for instance small sample size (Hoyle & Panter, 1995). The correlation matrices were generated from the principal components scores for each characteristic. Figures 5.4 and 5.5 present the correlation matrices used.

Path analysis assumes the data will be normally distributed, will have no multicollinearity, and there are at least five respondents for each parameter (Tabachnick & Fidell, 1989). Due to the low response rate, this study violates the assumption that there will be five times as many respondents as parameters. For models one to four, there are 1.6 respondents for each parameter and for models five and six, there were 3.1 respondents for each parameter. This is similar to Cohen et al. (1994) who had 3.5 times as many respondents as parameters.

5. Results

The results of this study can be analysed at three levels of aggregation. At the most aggregated level are the team characteristics, for example, task design and interdependence. These characteristics are composed of dimensions, such as task identity and task significance. These dimensions are comprised of individual questions from the questionnaire (see Appendixes A and B). This chapter considers the results of analysis at all three levels. Each level of aggregation will be considered where the techniques are applicable. The sections of this chapter describe the preliminary data screening, the demographic results, the internal consistency, the correlation analysis, and the path analysis.

5.1 Preliminary Data Screening

Data were screened prior to analysis to ensure they met the assumptions that the majority of applied statistical tests are based upon. For example, normality, linearity, lack of outliers, low skewness and kurtosis, homoscedasticity, and little multicollinearity. These were assessed using a variety of techniques.

The data were examined for skewness and kurtosis using skewness and kurtosis values generated by SAS®. A stringent significance level was used (α=.001) to gauge only those variables with large degrees of skewness and kurtosis as suggested by Tabachnick and Fidell (1989) when using small or medium sized data sets. Forty-two percent of the team member questions showed significant skewness. All the skewness was positive suggesting that team members generally evaluated their teams positively as lower scores indicated a positive response to the statement. Of the management questions, 12.5% were also skewed positively suggesting either a tendency to rate teams highly or that the teams were performing well. Positive kurtosis existed in some of the team member data (9.8% of questions), however the management data had no questions with significant kurtosis. Positive kurtosis refers

to a normal distribution in which the majority of responses are near the mean (see Tabachnick & Fidell, 1989).

Of the team member dimensions, 42% showed significant, positive skewness (α=.001) and 8% showed significant, positive kurtosis (α=.001). No management dimensions showed significant skewness or kurtosis.

When aggregated into team characteristics, an improvement was found with only 25% having significant, positive skewness (α=.001) and no characteristics having significant kurtosis.

The relatively large number of variables that have positive skewness or kurtosis or both, may be due in part to the number of respondents. The number of respondents was too small to provide a 'proper' picture of a normal distribution but was nearing the size where the value of *n* in the standard error formula plays a large part in easily obtaining significance (see Tabachnick & Fidell, 1989, for further discussion on this occurrence).

Due to the large amount of skewness and kurtosis, many questions failed to be considered normally distributed by the SAS® Univariate procedure. Likewise only 11% of the dimensions were considered normal. None of the team characteristics were normally distributed when the full data set of 91 respondents was considered, however, 56% were normally distributed in the smaller data set.

Several outliers were found in the questions considering the lengths of time: a person had been doing their job, a person had been in a team, a manager had been responsible for a team, and a team had been in operation. These outliers were checked for input errors, however none were found. On examination, all of these outliers came from two of the eight locations studied. This probably reflects the different lengths of time the teams have been in operation. The data containing the outliers were therefore retained in the study. These demographic questions were not considered at the aggregated levels.

The data were assessed for multicollinearity and singularity by examining pairwise correlation coefficients. When each question was correlated individually,

two pairs of questions emerged with correlations higher than the .90 limit proposed by Tabachnick and Fidell (1989). These pairs concerned manager judgements of productivity and efficiency (.93), and manager judgements of quality and efficiency (.95). Correlations were also examined at the dimension level at which, two correlations were over the .90 threshold. These were the managers' judgements of quality and customer service (.90), and managers' judgements of efficiency and productivity (.90). At the team characteristic level, no multicollinearity existed above the .90 threshold.

The linearity of the data was assessed by examining scatter plots of variables with bad skewness and kurtosis scores. Ideally, every variable in the data set would have been examined for linearity but the size of this data set makes this impractical. No questions or dimensions were found to have large degrees of non-linearity. All possible combinations of the team characteristics were examined with none found to be non-linear.

Homoscedasticity was also examined using scatter plots of variables. No major problems were detected when the variables were examined at any of the three levels of aggregation.

Several questions appeared to have a bimodal distribution when bar charts were examined. These questions were analysed with the demographic data using the general linear model and chi-square tests of association to see if any relationships could be found. With the exception of one, all of the questions were significantly related to the organisation and the number of people in the team. The questions with apparent bimodality were all insignificant when tested for skewness and kurtosis. This may highlight the deficiency of these measures when considered in isolation. Bar charts of both the dimensions and the team characteristics showed no variables with distinctly bimodal distributions.

Although the distributions were not exactly as required by the statistical methods, for example skewness and outliers existed, no transformations were made to the data. The two main reasons for not transforming the data were the large range

of different distribution shapes, and not knowing what transformations, if any, were used in the previous studies. Several of the variables had strange distribution shapes which could not be transformed successfully. It was therefore decided that no transformations would be performed to enable easier interpretation. The studies that this thesis is based on do not state whether or not transformations were performed on the variables. Consequently, any transformations conducted on the variables in this study may hinder interpretation and comparison between studies.

The departures from the assumptions mentioned in this section may weaken the results of this study as the data do not have the characteristics required by many of the statistical techniques. However, the path analysis was conducted only at the team characteristic level, which exhibited greater adherence to the assumptions. Within the characteristics, 25% had significant, positive skewness ($\alpha<.001$) but no team characteristics had significant kurtosis. There were no outliers or multicollinearity in the team characteristics nor any non-linearity or heteroscedasticity. The normality of the team characteristics varied with the two data sets. In the smaller data set, 56% of the team characteristics were normal while none of the team characteristics were considered normal by the SAS® Univariate procedure in the larger data set.

Although the assumptions are not stringently adhered to, the team characteristics level of aggregation does meet the majority of the required criteria.

5.2 Demographics

Means and standard deviations were computed on the demographic data to compare with previous studies. Of the 91 respondents, 60 were female. The average age of the respondents was 32 years (SD=12.68), the average tenure at the organisation was 48 months (SD=46.83), the average job tenure was 29 months (SD=26.26), and the average team tenure was 24 months (SD=20.44). Out of the 91 respondents, 13 had some form of tertiary education (13.19%). On average, the teams had been operating for 30 months (SD=25.57) and the managers had been responsible for the teams for 27 months (SD=37.12).

Compared to the three contributing studies, Campion et al. (1993; 1996) and Cohen et al. (1994), this sample was younger, had lower tenure and less education. This sample had fewer males than Campion et al (1996) and Cohen et al. (1994) but more males than Campion et al. (1993).

Demographic data were also examined using the General Linear Model and chi-square test of association to ensure no response bias existed between the companies in terms of the demographics of respondents. Team member's tenure at the organisation, management tenure, and the length of time a team had been operating, all differed significantly due to the location of the team. This is intuitively acceptable as different locations had been operating with teams for different lengths of time.

5.3 Cross Validation of Internal Consistency

Cronbach alphas were calculated to ascertain whether the levels obtained in the previous studies could be replicated. On the whole, the alpha levels of the dimensions in this study were smaller than the alpha levels of comparable indices obtained by Campion et al. (1993, 1996) and Cohen et al. (1994). One exception was the 'information' dimension with an alpha of .86 compared with α=.83 in Cohen et al.'s (1994) study.

Several of the alpha coefficients were disappointingly low, suggesting that the questions were only slightly related. These small coefficients may have arisen for several reasons. A small number of questions were used for each dimension allowing less tolerance of noise in the data; some of the reversed scored questions appeared not to have been understood by all respondents, shown by an almost zero correlation between two very similar questions, one of which was reversed; there was a large variety in the type of organisation and work done by respondents; and the dimensions were based on the results of the previous studies, some of which used empirically based dimensions as opposed to theoretically developed.

Table 5.1 shows the means and standard deviations for each of the dimensions along with coefficient alphas from the integrated model. Comparative alpha levels from Cohen et al. (1994) and Campion et al. (1993, 1996) are also presented when exactly the same questions were used in the integrated study. If questions were combined from both studies or not all questions relating to a dimension were used, no comparative alpha value is presented.

Coefficient alphas marked 'NA' were not computed as only one questionnaire item was used for that dimension. The managerial judgement dimensions have no comparable alpha coefficients as the questions were developed especially for this study, based on categories given by Campion et al. (1993). Intention to leave was not used as the measure of withdrawal behaviour in Cohen et al. (1994) therefore no comparative alpha coefficient is available.

Two of the three questions measuring the appropriateness of the team's size were removed from the analysis as they were direct opposites of each other and were only included for descriptive purposes. The questionnaire items 'Our team is too small to do our work well' and 'Our team is too big to do our work well' are diametrically opposed and consequently would confuse the analysis. Therefore the only question relating to the size of the team that remained in the analysis was 'Our team is the correct size to do our work well' and as a result, no Cronbach alpha was calculated.

Table 5.1

Means, Standard Deviations, and Coefficient Alphas from the Integrated Model.

	Mean	*SD*	α, # items	Cohen α	Campion (1993) α	Campion (1996)α
Task Design						
Variety	3.07	1.36	.73, 3		.71	.80
Identity	2.95	1.05	.52, 3			
Significance	2.28	0.94	.60, 3		.74	.81
Autonomy	2.88	1.35	.78, 3	.90		
Feedback	3.05	1.24	.77, 3	.90		
Part. in Decision Making	3.71	1.66	.87, 3		.88	.89
Interdependence						
Task	3.45	1.30	.61, 3		.61	.70
Goal	3.25	1.27	.67, 3		.68	.70
Feedback and Rewards	3.53	1.35	.65, 3		.59	.71
Composition						
Relative Size	3.89	2.12	NA			
Heterogeneity	2.91	0.86	.17, 3		.74	.71
Flexibility	3.30	1.35	.66, 3		.66	.85
Stability	3.71	1.19	-.10, 2			
Expertise	3.12	1.15	.71, 4	.84		
Context						
Training	4.02	1.51	.88, 5			
Resources	3.25	1.49	.63, 2			
Management Support	3.09	1.30	.55, 2		.74	.90
Information	3.84	1.43	.86, 5	.83		
Com./Co-op. between Teams	3.15	1.10	.26, 3		.47	.75
Process						
Norms	2.73	1.41	.78, 2			
Potency	2.79	1.31	.86, 3		.80	.83
Innovation	2.97	1.17	.54, 2			
Social Support	2.85	1.23	.69, 3		.78	.87
Com./Co-op. within Team	2.74	1.25	.79, 3		.81	.87
Workload Sharing	3.32	1.55	.82, 3		.84	.92
Performance						
Controlling Costs	3.15	1.43	NA			
Increasing Productivity	2.64	1.33	NA			
Increasing Quality	2.31	1.15	NA			
Increasing Safety	2.69	1.28	NA			
Managerial Judgement						
Quality	2.59	1.01	.83, 2			
Customer Service	2.84	1.23	.25, 2			
Productivity	2.99	1.45	.91, 3			
Efficiency	2.71	1.36	.67, 2			
Innovation/Initiative	2.75	1.15	.72, 2			
Co-op. w. Non-Team Memb.	2.54	1.07	.89, 3			
Safety	2.42	0.98	NA			
Quality of Work Life						
Job Satisfaction	2.78	1.37	.81, 2			
Team Satisfaction	2.56	1.02	.74, 3			
Social Satisfaction	2.86	1.26	.80, 3	.81		
Growth Satisfaction	3.20	1.38	.88, 4	.91		
Trust in Management	3.81	1.26	-.01, 2			
Organisational Commitment	3.34	1.09	.51, 3			
Withdrawal Behaviour						
Intention to Leave	3.93	1.99	NA			

Coefficient alphas were also calculated for the team characteristics to see how well the dimensions combined to form the characteristics. These alphas are shown in Table 5.2. These values are all high suggesting there was internal consistency at this level. The larger alpha values obtained here, as compared to the dimensions, were probably a function of the larger number of items included in the calculation.

Table 5.2

Cronbach Alphas for the Team Characteristics.

Characteristic	Cronbach α	No of Items
Task Design	.91	18
Interdependence	.81	9
Composition	.79	13
Context	.92	17
Process	.95	16
Performance	.92	9
Managerial Judgement	.96	16
Quality of Work Life	.91	17

The lack of respondents and the high degree of internal consistency shown by the aggregated team characteristics suggest that further analysis be performed at the team characteristics level. The dimension level of aggregation is unsuitable for multivariate analysis since there were fewer than five respondents for each dimension (Tabachnick & Fidell, 1989). There were 10.1 respondents for each characteristic, a vast improvement on the 2.1 respondents for each dimension.

To gain a meaningful aggregation for the team characteristics, a principal components analysis was conducted and the principal component scores from the first eigenvector were used, as they represented an overall measure of the characteristic. The proportion explained in each team characteristic by this eigenvector ranged from 36% to 64% across the eight characteristics that were aggregated.

5.4 Correlational Results

Correlations were examined at two levels of aggregation - dimensions and team characteristics. As the dimensions will not be used in further analysis, the dimension correlations will not be discussed. The dimension correlations are presented in Appendix E for the purpose of comparison with future research. The 'size' dimension is comprised of only one question as discussed earlier.

Table 5.3 shows the correlations for the team characteristics indicating significance at the $p<.01$ and $p<.05$ levels. Cronbach alphas are presented in parentheses. There is no alpha available for the withdrawal behaviour characteristic as it was a single question.

Table 5.3

Intercorrelations and Cronbach Alphas for the Team Characteristics.

Characteristics	1	2	3	4	5	6	7	8	9
1. Task Design	(.91)								
2. Interdependence	.50**	(.81)							
3. Composition	.55**	.37**	(.79)						
4. Context	.72**	.46**	.57**	(.92)					
5. Process	.54**	.48**	.63**	.52**	(.95)				
6. Performance	.60**	.31**	.69**	.50**	.80**	(.92)			
7. Managerial Judgement	.43**	.01	.20	.44**	.28*	.34*	(.96)		
8. Quality of Work Life	.70**	.37**	.59**	.61**	.68**	.62**	.29*	(.91)	
9. Withdrawal Behaviours	-.10	-.16	-.15	-.10	-.23*	-.08	.07	-.35**	(NA)

*$p<.05$
** $p<.01$

The majority of the correlations (67%) were significant at the $p<.01$ level with only eight of the thirty-six relationships insignificant at $p<.05$. Six of these eight insignificant relationships were from withdrawal behaviour relationships which were not predicted by the model.

Correlations between dependent and independent characteristics.

Team members' ratings of performance (referred to as performance in Table 5.3) and quality of work life were the dependent characteristics with the largest number of significant relationships with the independent characteristics. Withdrawal

behaviour and managerial judgement showed fewer significant relationships. Process characteristics had the most significant relationships with the dependent characteristics, with all four relationships significant at the $p<.05$ level. The task design and context characteristics each showed three relationships significant at the $p<.01$ level while the interdependence and composition characteristics had two relationships significant at the $p<.01$ significance level.

Correlations within dependent and independent characteristics.

All of the intercorrelations between the independent characteristics were significant at the $p<.01$ level. All of these intercorrelations had a medium to large effect size suggesting the characteristics were strongly interrelated (Cohen, 1992). The dependent characteristics were less interrelated although the relationship between the team members' ratings of performance and quality of work life was significant at the $p<.01$ level. The correlation between the team members' and managers' ratings of performance was significant at the $p<.05$ level even though the manager rating was conducted at a greater level of detail. Managers' ratings of performance were more related to team members' ratings of performance than quality of work life, a trend that concurs with Campion et al.'s (1993) results.

The negative relationship between quality of work life and withdrawal behaviours was significant at the $p<.01$ level. Process characteristics were the only other variable to have a significant relationship with withdrawal behaviours ($p<.05$).

5.5 Path Analysis

Path analysis was conducted on the 55 respondents that had matching manager responses and then on the full set of 91 respondents.

Table 5.4

Correlations used in the Path Analysis of the Managerial Data (n=55).

Characteristics	*SD*	1.	2.	3.	4.	5.	6.	7.	8.	9.
1. Task	2.48	1.00								
2. Interdependence	1.88	.33	1.00							
3. Composition	2.04	.33	.08	1.00						
4. Context	2.60	.61	.18	.40	1.00					
5. Process	3.29	.40	.38	.49	.41	1.00				
6. Performance	2.30	.53	.28	.65	.46	.79	1.00			
7. Managerial Judgement	3.20	.43	.01	.20	.44	.28	.34	1.00		
8. Quality of Work Life	2.92	.63	.25	.47	.54	.60	.53	.29	1.00	
9. Withdrawal Behaviour	2.15	-.10	-.16	-.20	-.14	-.26	-.07	.07	-.38	1.00

Input to the procedure was by way of the correlation matrices seen in Tables 5.4 and 5.5, using the data to four decimal places. The matrices have been presented to two decimal places for simplicity. (The full matrices used can be obtained from the author.) These matrices were the result of correlating the principal component scores for each team characteristic as well as the intention to leave question. To avoid confusion, the team characteristics have been identically numbered in the tables, despite the lack of managerial judgement for the larger data set.

Table 5.5

Correlations used in the Path Analysis of the Non-Managerial Data (n=91).

Characteristics	*SD*	1.	2.	3.	4.	5.	6.	8.	9.
1. Task	2.69	1.00							
2. Interdependence	1.90	.50	1.00						
3. Composition	2.15	.55	.37	1.00					
4. Context	2.78	.72	.46	.57	1.00				
5. Process	3.04	.54	.48	.63	.52	1.00			
6. Performance	2.38	.60	.31	.69	.50	.80	1.00		
8. Quality of Work Life	2.86	.70	.37	.59	.61	.68	.62	1.00	
9. Withdrawal Behaviour	1.99	-.10	-.16	-.15	-.10	-.23	-.08	-.35	1.00

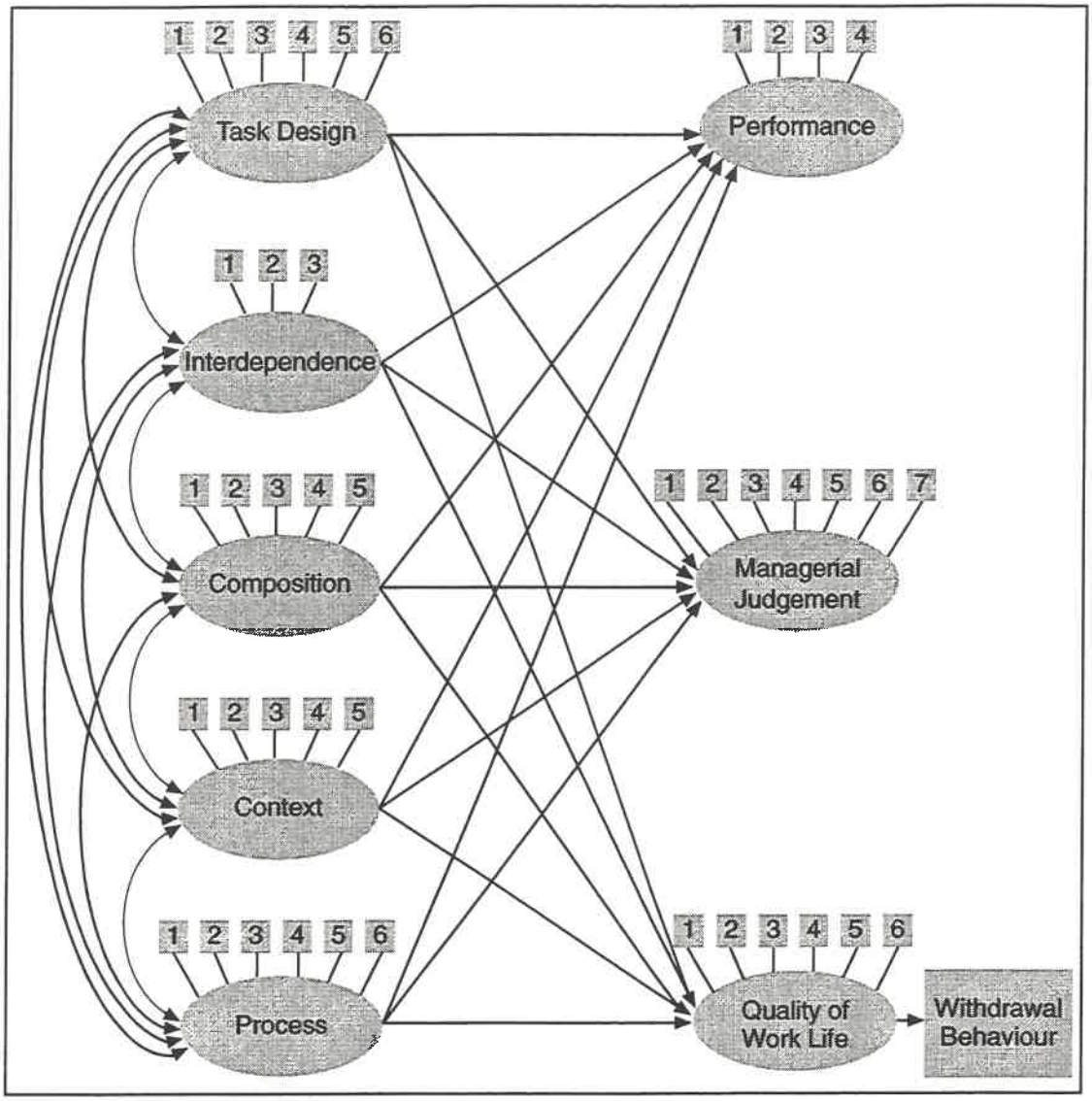

Figure 5.1: The Ideal Structural Equations Model comprising of both Latent and Manifest Variables.

Ideally, the structural equations model in Figure 5.1, comprising both manifest and latent variables, would have been tested. The numbered manifest variables correspond to the dimensions that combine to give each team characteristic. For a full description of each dimension, see Figure 3.1.

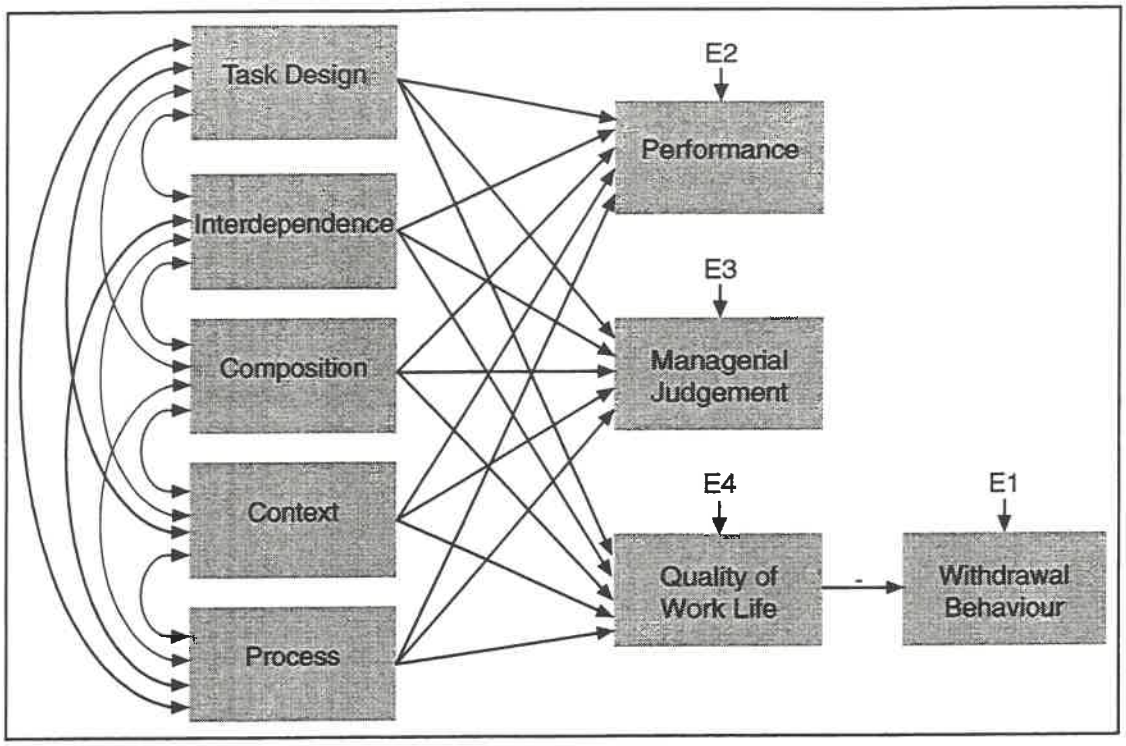

Figure 5.2: The Path Model comprising of the Manifest Variables that were tested.

The lack of respondents prevented the use of the structural equations model and consequently the path model in Figure 5.2 was tested. This model treats all the team characteristics as manifest variables as they are directly measurable through the principal components scores. The model is recursive as all causation flows only from left to right. All relationships indicated on the diagram are positive with the exception of the relationship between quality of work life and withdrawal behaviour. The curved lines represent covariances while the straight lines indicate a causal relationship in the direction specified. E1, E2, E3, and E4 represent residual terms which correspond to the unexplained variance for each of the dependent characteristics.

Using manifest variables assumes that the variable is measured with perfect reliability and validity. Although the internal reliability coefficients were high, they were not perfect hence this assumption is violated. No validity testing could be conducted hence the assumption is once again violated.

Six path models were tested, some being the result of post-hoc modification on previous models. Four models tested using the smaller data set and two with the full ninety-one respondents.

Each model that was tested was over-identified using the criterion that the number of points was greater than the number of parameters (Asher, 1988; Bollen, 1989). Being over-identified refers to the existence of more information in the data than parameters to be estimated. A unique solution was therefore able to be obtained and goodness of fit measures were able to be calculated.

Optimisation used the Levenberg-Marquardt technique. In all cases the appropriate convergence criteria were satisfied. Convergence criteria were based on the gradient convergence criterion.

Three goodness of fit measures were examined for each model when considering its overall fit. These were the chi-square statistic, Bentler's (1989) Comparative Fit Index (CFI), and Bentler and Bonett's (1980) Non-normed Index (NNI). The chi-square statistic tests the null hypothesis that the covariance matrix and the predicted covariance matrix are similar, that is, the model fits the data. Insignificant values for the chi-square statistic indicates a good fit. The CFI and NNI are also goodness of fit measures. They have been shown to be less biased in small samples than other measures hence they have been selected for use in this study (Bentler, 1989). Values over .90 on the CFI and NNI indicate an acceptable fit between the model and the data. Comparative goodness of fit measures for all of the models are presented in Table 5.6 after each model has been discussed individually.

Model one (n=55).

The first test of the path model was on the 55 respondents that had corresponding managerial judgements data. The resulting model with the error terms, significant path coefficients, and significant covariances is shown in Figure 5.3.

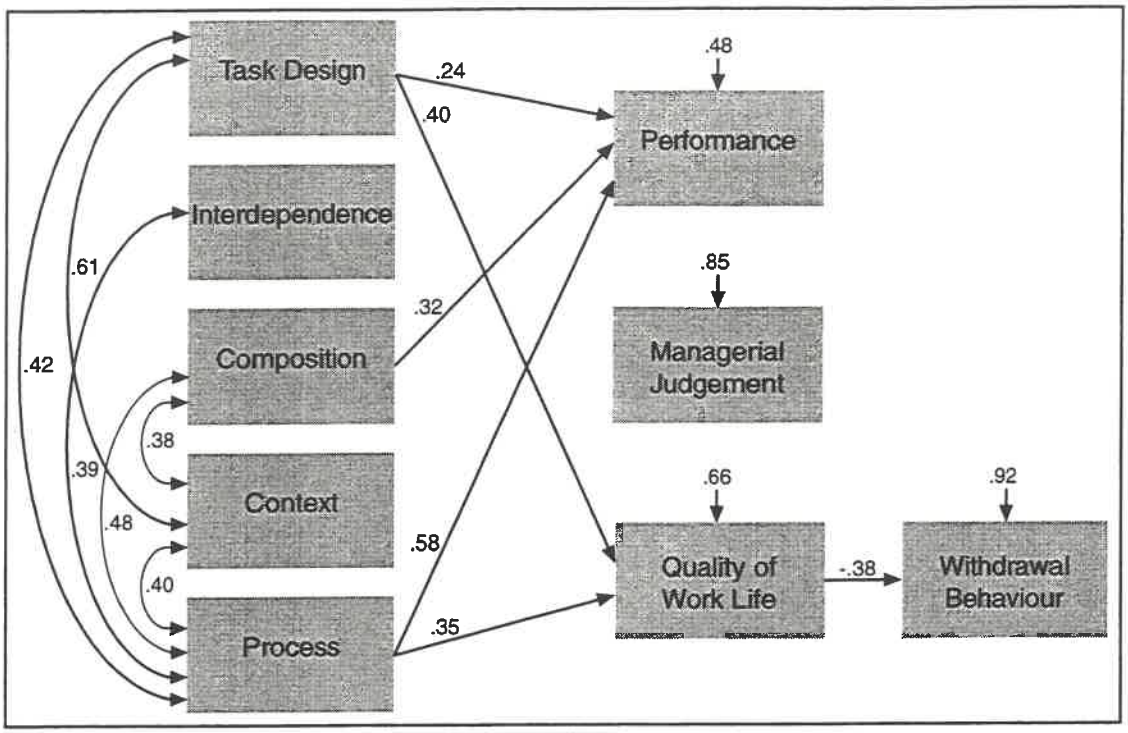

Figure 5.3: The Path Model including the Managerial Judgements Characteristic (n=55).

Performance as determined by the team members was significantly predicted at the .05 level by the task design (.24), composition (.32), and process (.58) characteristics. Quality of work life was significantly predicted at the .05 level by the task design (.40) and process (.35) characteristics. Withdrawal behaviours were significantly predicted by the quality of work life characteristic (-.38). Several of the independent characteristics were significantly correlated. Managerial judgements were not significantly related to any other characteristics.

The residual terms for the dependent characteristics were .48 for performance, .85 for managerial judgement, .66 for quality of work life, and .92 for withdrawal behaviour.

The data fit the hypothesised model well with the chi-square value insignificant (p=.19) and values of .98 and .93 for the CFI and NNI respectively.

One of the standardised residuals exceeded 2 in absolute magnitude suggesting the model was overfitting the covariance for the relationship between quality of work

life and performance. This relationship also had a significant value in the Lagrange Multipliers. However, the path was not added as in further tests of the path model, it became insignificant.

Although the goodness of fit measures were satisfactory, further examination of the Lagrange Multipliers suggested that a path from team members' perceptions of performance to withdrawal behaviours would best increase the overall fit of the model.

Model two (n=55).

The extra path from team members' perceptions of performance to withdrawal behaviours increased the overall fit of the model but did not change the significance of the paths.

Team members' perceptions of performance were significantly predicted at the .05 level by the task design (.22), composition (.31), and process (.58) characteristics. Quality of work life was significantly predicted by the task design (.39) and process (.35) characteristics. Withdrawal behaviour was still only significantly predicted by quality of work life (-.48). Therefore, although the extra path was added from team members' perceptions of performance to withdrawal behaviours, it was statistically insignificant. The same independent characteristics were still significantly correlated with each other.

The residual terms for the dependent characteristics were .49 for performance, .86 for managerial judgement, .66 for quality of work life, and .92 for withdrawal behaviour.

The goodness of fit measures all improved with the chi-square value becoming more insignificant (p=.29), the CFI increasing to .99, and the NNI increasing to .96. No standardised residuals were greater than two and no Lagrange Multipliers were significant at the .05 level.

Again, the managerial perceptions of performance were not significantly related to any of the other characteristics. Hence the model was retested using the 55 respondents but without the managerial judgements characteristic. This was to assess the feasibility of testing the model without the managerial judgement characteristic on the full data set of 91 respondents.

The model was tested without the managerial judgements characteristic both with and without the extra path from team members' perceptions of performance to withdrawal behaviour. The model without the extra path will be discussed first.

Model three (n=55).

Removing the managerial judgements characteristic from the original model (model one) slightly decreased the overall fit of the model but did not change the significance of the paths. Team members' perceptions of performance were significantly predicted at $p<.05$ by the task design (.22), composition (.31), and process (.58) characteristics. Quality of work life was significantly predicted by the task design (.39) and process (.35) characteristics. Withdrawal behaviour was significantly predicted by the quality of work life (-.38) characteristic. The same independent characteristics were significantly correlated as in model one.

The residual terms for the dependent characteristics were .49 for performance, .66 for quality of work life, and .93 for withdrawal behaviour.

The goodness of fit measures decreased slightly with the chi-square statistic becoming less non-significant (p=.14), the CFI staying at .98, and the NNI decreasing to .91. Although the goodness of fit measures were not as good, they still were satisfactory with both the CFI and the NNI above .90. This model had no standardised residuals above two but the Lagrange Multipliers suggested the extra path from team members' perceptions of performance to withdrawal behaviour would once again make a significant difference on the chi-square statistic. The next model tested included the extra path but again did not include the managerial judgement characteristic.

Model four (n=55).

This model produced better goodness of fit measures than the model without the extra path (model three) but was not as good as the original model with the extra path (model two). This was attributed to the removal of the managerial judgements characteristic. The significant paths at $p<.05$ significance level were identical to those in model two, to two decimal places. The added path, from team member perceptions of performance to withdrawal behaviours was once again insignificant.

The residual terms for the dependent characteristics were .49 for performance, .66 for quality of work life, and .92 for withdrawal behaviour.

All of the standardised residuals were less than the critical value of two and no Lagrange Multipliers were significant at the $p<.05$ significance level. Goodness of fit measures were still satisfactory with the chi-square statistic insignificant (p=.16), the CFI at .98, and the NNI at .91.

Since very little changed when the managerial judgements characteristic was removed, model three was tested on the 91 respondents.

Model five (n=91).

The path analysis on the 91 respondents changed the significant paths only slightly from the previous models. The resulting path model is presented in Figure 5.4. The residual variances are shown along with the significant path coefficients and covariances.

Team members' perceptions of performance were significantly predicted at the $p<.05$ level by the task design (.26), interdependence (-.17), composition (.27), and process (.61) characteristics. Quality of work life was significantly predicted by the task design (.42) and process (.40) characteristics. Withdrawal behaviours were once again significantly predicted by quality of work life (-.35). All of the independent characteristics were significantly correlated with each other.

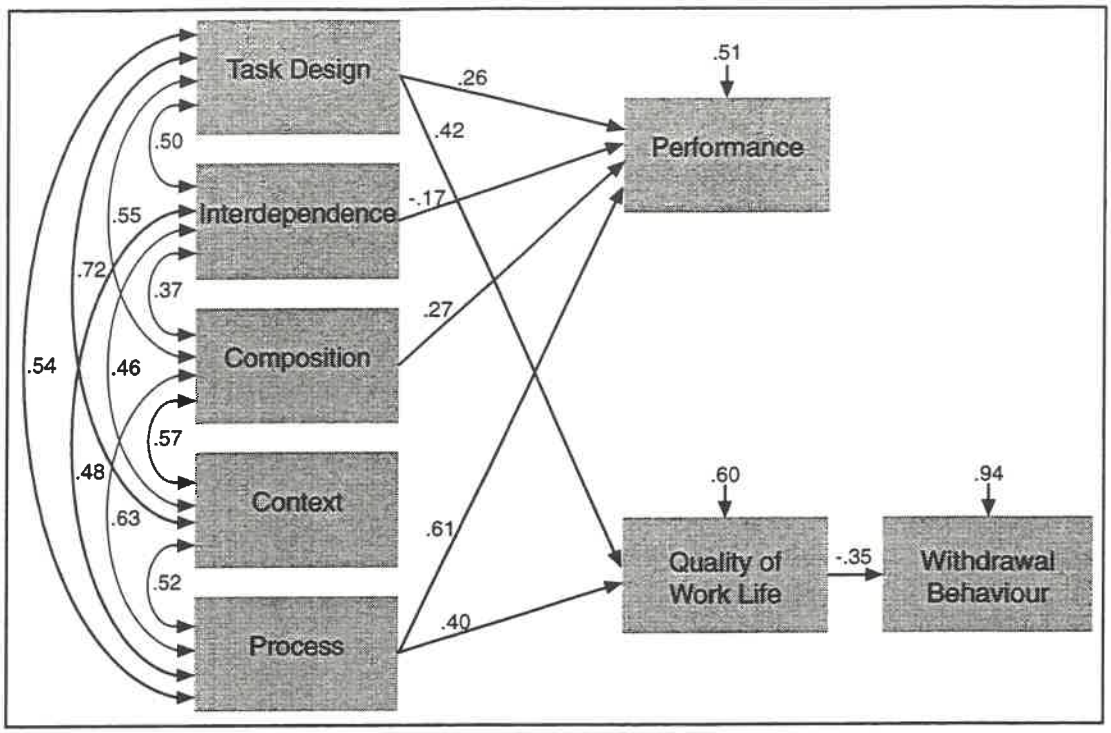

Figure 5.4: The Path Model excluding the Managerial Judgements Characteristic (n=91).

The residual terms for the dependent characteristics were .51 for performance, .60 for quality of work life, and .94 for withdrawal behaviour.

The goodness of fit measures for the model were all acceptable. The chi-square statistic was insignificant (p=.22), the CFI was .99, and the NNI was .98, which was better than all previous tests. The standardised residuals were all less than two.

The Lagrange Multipliers suggested that one extra path be added to improve the overall fit of the model. Unlike the models with the smaller data set, this was not from team members' perceptions of performance to withdrawal behaviour. It was instead a path from the task design characteristic to withdrawal behaviour. This was tried in model six as Cohen et al. (1994) found this path was significant in testing her model with traditionally managed teams.

Model six (n=91).

The addition of an extra path between the task design characteristic and withdrawal behaviour increased the overall fit of the model but did not change the existing significant paths. The only change to the path coefficients at the $p<.05$ significance level was an increase in the path coefficient from the quality of work life characteristic to withdrawal behaviour (-.54). The new withdrawal behaviour-task design path (.27) was significant at $p<.05$ but insignificant at $p<.01$ suggesting it was not as strong as the other paths.

The residual terms for the dependent characteristics were .51 for performance, .60 for quality of work life, and .91 for withdrawal behaviour.

The overall fit of this model was better than any of the others tested. The chi-square statistic was less significant than any other (p=.46) and the CFI and NNI were both higher than the other models at 1.00 and 1.01 respectively. This model had no standardised residuals greater than two and no Lagrange Multipliers were significant at the .05 level.

5.5.1 Comparison of the Results from the Six Models

The six path models were tested in an exploratory analysis of the proposed model. All of the models tested were acceptable in terms of the goodness of fit measures. All chi-square tests were insignificant and all CFI and NNI values were greater than .90. Table 5.6 shows these goodness of fit measures for each of the six path models.

Table 5.6

Comparative Goodness of Fit Measures for the Six Path Models.

Model	Chi-square	df	p	CFI	NNI
One	13.57	10	.19	.98	.93
Two	10.86	9	.29	.99	.96
Three	10.87	7	.14	.98	.91
Four	9.34	6	.16	.98	.91
Five	9.41	7	.22	.99	.98
Six	5.46	6	.46	1.00	1.01

The proportion of variance explained by each dependent team characteristic differed greatly. The r^2 values for each dependent characteristic in the models are presented in Table 5.7. The low entries in this table suggest other influences on these team characteristics have not been included in the path models.

Table 5.7

Comparative r^2 Values for the Six Path Models.

Model	Performance	Managerial Judgements	Quality of Work Life	Withdrawal Behaviour
One	.77	.28	.56	.15
Two	.76	.27	.57	.16
Three	.76	-	.57	.14
Four	.76	-	.57	.16
Five	.74	-	.64	.12
Six	.74	-	.64	.16

In all models, the null model chi-square was very significant ($p<.001$) whereas the tested model chi-square was insignificant, indicating the models fitted the data much better than the null model of non-correlated variables. However chi-square tests of difference detected only one significant improvement between the path models. This improvement was found when comparing model five to model six ($p<.05$). Although model two appears to fit better than model one, and model four appears to fit better than model three, the improvements in the chi-square statistic were not significant.

6. Discussion

This thesis has yielded similar results to the studies on which it was based, namely Campion et al. (1993), Campion et al. (1996), and Cohen et al. (1994). These similarities existed despite several differences in the demographic characteristics. For example, the average team member's age, the average tenure, and the education level were all lower in this thesis than in the other studies.

This chapter will discuss the results of this study with reference to the previous research.

6.1 Internal Consistency

The internal consistency in this study varied dramatically depending on the level of aggregation being examined. At the lowest level, for instance comparing questions within dimensions, several of the coefficient alphas were unacceptable and two were negative, an event that should not occur. This was due to an anomaly of the formula that arises when the variance in the total is less than the combined variance of the individual items. One example of the negative alpha values was -.01, belonging to the trust in management dimension. Further examination showed that the correlation between the two questionnaire items within that dimension was -.0058. Since one of these questions was reversed scored in the questionnaire, it is suggested that enough respondents misinterpreted the question to destroy the relationship.

At the characteristic level, the internal consistency was satisfactory with the smallest coefficient alpha equal to .79. This suggested that the dimensions within a characteristic were measuring a similar construct and this was instrumental in the decision to proceed with the analysis at the characteristic level.

Internal consistencies at the characteristic level were similar, if not better than the aggregated level internal consistencies reported by Cohen et al. (1994). For

example, task design in the integrated model produced a coefficient alpha of .91, whereas in Cohen et al.'s study was .82, and the team members' ratings of performance in the integrated model had a coefficient alpha of .92 compared with .82 in Cohen et al.'s study. This suggested that the characteristics used were at least as internally consistent as Cohen et al.'s aggregated level variables. No comparison of internal consistency is provided with Campion et al. (1993; 1996) since Campion et al. did not present internal consistency data at this level of aggregation.

6.2 Correlations

The correlational research showed a large number of relationships significant at $p<.01$ especially at the team characteristic level. Overall, the correlations at this level were higher than in the studies on which this thesis was based. However, direct comparisons between the previous studies' results and those of the integrated model should be performed with caution. Not all the composite measures reported in the previous studies included the same dimensions as in this study, and different methods have been used to obtain the composites.

The team characteristic correlations from the integrated model were compared with similar characteristics from the previous studies. Of the team characteristic correlations, 87% were greater than the correlations reported in Campion et al. (1993), 83% were greater than those reported in Campion et al. (1996), and 83% were greater than those reported by Cohen et al. (1994). This suggests this study achieved a worthwhile number of significant relationships.

As in Campion et al. (1996) and Cohen et al. (1994), managerial judgements were the least predicted dependent characteristic, with the exception of withdrawal behaviours which was not hypothesised to be predicted by the independent characteristics. The composition characteristic was not related to managerial judgement at $p<.05$ whereas Campion et al. (1993) reported this relationship. This study's composition characteristic included some extra dimensions from Cohen (1994) which may account for the different results. However, the interdependence

characteristic was exactly the same as that used in Campion et al. (1993), yet this study found no relationship with managerial judgement at $p<.05$ even though Campion et al. reported a relationship at $p<.10$. The near zero correlation from the integrated study calls into question the idea of interdependence leading to team performance as perceived by the management. The lack of relationship may be due to the differing effects of received and initiated interdependence which will be discussed in section 6.3.

Withdrawal behaviours exhibited only two significant relationships in this study. At $p<.01$ a negative relationship with quality of work life existed. This supports the idea that quality of work life and an employee's intention to leave are closely related as hypothesised by the integrated model, Lawler (1986) and Steers and Mowday (1987). A weaker relationship was found between the process characteristic and withdrawal behaviour ($p<.05$).

The large magnitude of the correlations in this study may reflect common method bias. Very little method or chronological separation existed in gathering the data therefore it is possible that some of the correlations may be artificially inflated. The results need to be replicated before their contribution to the literature can be assessed.

6.3 Path Analysis

Path analysis was conducted on six models, several of these models the result of post-hoc model modification. The differences between the models were not great, and all were acceptable in terms of overall fit. There were only negligible differences in path coefficients and significant paths, even when moving between the two data sets.

Using the characteristics in the analysis has caused some loss of detail and therefore conclusions can only be drawn at the aggregated level. It is important to understand what the team characteristics include so that the analysis is meaningful.

The task design characteristic includes six dimensions: task variety, task identity, task significance, autonomy, feedback, and participation in decision making. When combined, they measure how well a job has been designed to be motivating for workers. The primary focus is not on the team members but on the job itself.

The interdependence characteristic consists of three dimensions: task interdependence, goal interdependence, and interdependent feedback and rewards. This focuses on how well the team works together. Several different factors from multiple levels make up the interdependence characteristic. For instance, the team members, the task structure, and the organisation.

The composition characteristic focuses exclusively on the team members. It includes five dimensions: size, heterogeneity, flexibility, stability, and expertise.

The environmental influences on the team are represented by the context characteristic. It has five dimensions: training, resources, management support, information, and communication and co-operation between teams. This characteristic measures how well the team's environment supports the achievement of their work.

The process characteristic focuses on the team itself and how well the team members interact. Six dimensions are included in the process characteristic: norms, potency, innovation, social support, workload sharing, and communication and co-operation within the team.

The dependent variables are slightly easier to perceive as characteristics. Performance is the team members' perspectives of the team's overall performance on four dimensions: increasing productivity, quality, safety, and controlling costs. Managerial judgement is also an overall perspective on the team's performance. Quality of work life represents the team members' satisfaction with their work and commitment to the organisation. Withdrawal behaviour is a single question measuring intention to leave.

6.3.1 The Managerial Judgement Characteristic

The managerial judgement characteristic didn't notably help the model fit the data. When the characteristic was removed, the CFI was unchanged and the NNI dropped .02 (model one to model three). Similar results were obtained when the managerial judgement characteristic was removed from the model with the extra path (model two to model four). These small decreases suggested that the integrated model could feasibly be tested on the larger data set without the managerial judgements characteristic.

The lack of predictability of the managerial judgements characteristic may have been due to many factors. The managers who completed the questionnaire may not have been involved enough with the teams to know how well they were actually performing. Managers may have completed the questionnaire inaccurately and may have let personal biases intercede. It is also possible that the path diagrams model an employee's perception of their team and that this is removed from the actual performance of the team. The lack of relationships with managerial judgement of performance may indicate that the model is not well grounded in reality.

The real reason(s) for the lack of predictability of the managerial judgement characteristic will not be known until the integrated model is retested with more rigour to eliminate any possible biases. However, this is the latest in several studies, for example Cohen et al. (1994), that show managerial judgements of team effectiveness to be less predictable than other effectiveness criteria (see Table 6.1 for an illustration of this).

6.3.2 Selecting a Model

An acceptable model has favourable goodness of fit measures, no standardised residuals greater than two, large r^2 values, preferably no post-hoc modification, and has all paths theoretically sound (Hatcher, 1994; Hoyle & Panter, 1995). Each of the six models will be assessed in terms of these criteria. All six of the models had acceptable goodness of fit statistics therefore this criteria was unable to discern a

superior model. The r^2 values from all models were very similar, although not large. Again this criteria was not used in selecting the final model. One of the most appropriate criteria in selecting the final model was the extent of post-hoc modification.

Post-hoc model modification is a problem with models using a sample size smaller than 800 as the modifications made are unlikely to be replicated (Hoyle & Panter, 1995). The modifications therefore reflect the idiosyncrasies of the data as opposed to actual model misspecifications.

Model one was tested on the smaller data set. It had one standardised residual greater than two, but all paths were theoretically sound since this was the original model.

Model two was based on model one, but an extra path was added from team members' perceptions of performance to withdrawal behaviours. This model was tested on the smaller data set and no standardised residuals were greater than two. Adding the extra path was a post-hoc modification, however this path may be theoretically justifiable (see Sager, Futrell & Varadarajan, 1989).

Model three could be described as model one with the managerial judgements characteristic removed. This removal was not altogether post-hoc and was always to be tried since previous studies had found managerial judgements were less predicted than other dependent variables (e.g. Cohen et al., 1994). This model had no standardised residuals above two.

Model four combined the modifications of models two and three, resulting in a model without a managerial judgements characteristic but with a path from the team members' perceptions of performance to withdrawal behaviour. Again no standardised residuals were greater than two.

Model five is the same as model three but was tested on the larger data set. As previously discussed, the removal of the managerial judgement characteristic was not considered a post-hoc modification as the original intention was to test this model.

The goodness of fit measures were higher than any of those previously obtained and the model had no standardised residuals greater than two.

Model six is similar to model five but includes the extra path from the task design characteristic to withdrawal behaviours. This model had the best goodness of fit statistics with the CFI being 1.00 and the NNI 1.01. No standardised residuals were greater than two and the r^2 values were the best they had been in two of the three dependent characteristics. However, this model did have one post-hoc modification which may not be theoretically sound.

These six models are very similar and several of them could be regarded as acceptable. Although model six has the best goodness of fit measures, it cannot be used since the added path is possibly theoretically unsound. Model five has been chosen as the best tested model. It is based on a larger sample size and is therefore less susceptible to sample size problems. It also involves no theoretically unsound paths or post-hoc model modification. The next section will discuss the chosen model in more detail.

6.3.3 The Path Model

The chosen path model (model five) involves five independent characteristics and three dependent characteristics. The relationships were modelled as they appeared in Figure 3.1, but with the managerial judgements characteristic removed. All relationships shown in Figure 5.4 were significant at $p<.01$.

Of the five independent characteristics, the only one that did not predict performance was the context characteristic, which will be discussed subsequently. Only the task design and process characteristics predicted quality of work life at the $p<.05$ significance level. Quality of work life then had a significant negative relationship with withdrawal behaviour. Each independent characteristic will now be discussed in turn.

The task design characteristic had significant relationships at the $p<.01$ level with both the performance and quality of work life characteristics. This supports

Hackman et al.'s (1975) Job Characteristic Model which hypothesises that jobs high on motivating characteristics will produce better work performance, higher satisfaction with the work, and lower absenteeism and turnover. Although not all of these relationships have been tested, for example with absenteeism, the integrated model does endorse these propositions.

The task design characteristic showed a stronger relationship with quality of work life (.42) than performance (.26). This is consistent with Lawler (1986) who suggests job enrichment, of which task design plays a part, has more of an impact on job satisfaction, absenteeism, and turnover than productivity.

The interdependence characteristic has one significant relationship, which is with performance. This weak negative relationship, the opposite of what was predicted, may have arisen due to several factors.

The first is the aggregation of the dimensions into characteristics. This has caused detail to be lost and consequently the resulting relationship is an average of the contributing relationships. If, for example, one of the interdependence dimensions had a strong negative relationship with performance, the resulting characteristic relationship may have been negative.

Another possible factor is the differing effects of received and initiated task interdependence. As discussed earlier (section 3.2.2), initiated task interdependence is thought to be motivating while received task interdependence is not. If received task interdependence was dominant, a negative relationship with performance would be expected. Since task interdependence has been aggregated with goal interdependence and interdependent feedback and rewards, no information is available regarding the task interdependence-performance relationship.

One further explanation for the negative relationship between task interdependence and performance is that interdependence is not a homogeneous characteristic. This was suggested earlier when the characteristics were examined. Interdependence has influences from the team members, the task structure, and the

organisation. Even though the internal consistency was adequate, these differing influences may combine to give the negative relationship.

These issues may also have helped prevent the relationship between interdependence and quality of work life from obtaining significance. Future research may help clarify the relationships with interdependence.

The composition characteristic only had a significant relationship with performance as judged by the team members. This confirms the thought from many theorists that compositional factors influence the effectiveness of teams (see Guzzo & Shea (1992) for a discussion of these). However, due to the aggregation, no additional information is available regarding which compositional dimensions were significant. It is surprising that the composition characteristic failed to reach significance with the quality of work life characteristic, as some research suggests that individually, particular composition factors do influence quality of work life. Examples of this include large team size, which has been related to lower levels of satisfaction (Howell & Dipboye, 1986) and homogeneity, which has been related to increased satisfaction (Pearce & Ravlin, 1987). It is possible that the theorised relationships are obscured by the dimensions that are not directly hypothesised to relate to quality of work life (such as flexibility, stability, and expertise). The average of these dimension-level relationships may be insignificant. Further research, without using the aggregation present in this study, may be able to ascertain which compositional variables are related to which dependent variables.

The inability of the context characteristic to reach significance with any of the dependent characteristics is somewhat mystifying. The characteristic has been retained in the model as all the other independent characteristics are significantly correlated with it at the $p<.05$ level.

The recent literature has stressed that teams cannot be examined in isolation from their environments. This has led to an increase in the study of team contexts and the inclusion of contextual influences in many team effectiveness models. The lack of a relationship in this study could be a function of the aggregation, in that vital

information has been lost for discerning the significant relationships. Another possibility is that the recent deluge of attention to contextual influences is not warranted, since they play only a peripheral role in determining a team's effectiveness. One further possibility is that the diverse organisational types in the sample caused the insignificance of the context characteristic. Cohen et al. (1994) suggests that contextual factors may be more important in service industries than routine, manufacturing organisations.

The process characteristic had two strong, significant relationships, one with performance (.61) and one with quality of work life (.40). This suggests the internal workings of a team are very important in determining the team's overall effectiveness. The integrated model provides support for including process as an input characteristic (Cohen, 1994) rather than in the input-process-output framework (Gladstein, 1984). The process characteristic is significantly correlated at the $p<.01$ level with the other independent characteristics.

Although many of the paths hypothesised were significant at the $p<.01$ level, a large amount of variation in the dependent characteristics remains unexplained. This residual variation may be due to measurement errors or influences on the characteristics that have not been modelled. It is likely that this latter reason is the explanation for the very high residual value for withdrawal behaviour. Several other influences, for example, perceived co-worker intentions, have been shown to be an antecedent to intention to leave (Kirschenbaum & Weisberg, 1990). However, these have not been modelled as they did not appear in the contributing studies.

6.3.4 Comparison with Cohen et al.'s (1994) Study

Cohen et al. (1994) is the only study on which the integrated model is based that used structural equations modelling or path analysis. This section will compare and contrast the results of the two models.

Cohen et al. (1994) used structural equations analysis on two samples in their study - self managed teams and traditionally managed teams. Comparisons will be made between the integrated model's results and Cohen et al.'s results from the traditionally managed teams, as few of the teams in the integrated model's sample were self managed.

As shown in Tables 6.1 and 6.2, Cohen et al. (1994) had fewer significant paths at $p<.01$ than the integrated model.

Table 6.1

Significant Path Coefficients at $p<.01$ from Traditionally Managed Teams in Cohen et al. (1994).

	Team Rating of Performance	Quality of Work Life	Manager Rating of Performance	Absenteeism
Group Task Design		.38		-.61
Encouraging Supervisory Behaviour				
Group Characteristics		.21		
Employee Involvement Context		.35		

With the exception of encouraging supervisory behaviours, all of the dependent characteristics significantly predicted quality of work life in Cohen et al.'s (1994) study. The integrated model showed less relationships with quality of work life but possessed relationships with team members' perceptions of performance.

The path coefficients between task design and quality of work life are of similar magnitude in both studies giving increased importance to this relationship. However, a lack of relationship with team rating of performance in Cohen et al.'s (1994) study is in direct contrast to the integrated model, in which four of the five

independent characteristics were significantly related to team members' perceptions of performance. This area requires future research to clarify the predictability of team members' ratings of performance.

Table 6.2

Significant Path Coefficients at $p<.01$ from the Integrated Study.

	Performance	Quality of Work Life	Withdrawal Behaviour
Task Design	.26	.42	
Interdependence	-.17		
Composition	.27		
Context			
Process	.61	.40	
Quality of Work Life			-.35

In their study of traditional and self managing teams, Cohen et al. (1994) found that none of the predictor variables affected all effectiveness criteria. For example, employee involvement context predicted only quality of work life and manager ratings of performance. The conclusion reached by Cohen et al. was that to gain a positive affect on all effectiveness criteria, it would be necessary to manipulate multiple predictor variables. In contrast, the results from the integrated model suggest that manipulating either task design or team processes would gain an improvement in performance, quality of work life, and indirectly, withdrawal behaviour. Whether or not dependent variables influence multiple criteria of effectiveness needs to be ascertained in order for organisations to obtain effective teams. Therefore, it would be an important issue for future research.

The lack of relationship between the context characteristic and the effectiveness criteria in the integrated model is in direct contrast to Cohen et al.'s (1994) results that suggest a team's context is the most important determinant of effectiveness. This is a further area for future investigation.

6.4 Review of the Objectives

Overall, the objectives of the study were met well. The three objectives were:

- To develop an integrated model of team effectiveness thus extending two existing theoretical team effectiveness models,
- To assess whether the team characteristics examined in the integrated model were related to team effectiveness,
- To ascertain if the models this study is based on could be applied with similar results in New Zealand thus extending our knowledge of teams in New Zealand.

The integrated model that was developed included elements from both Cohen's (1994) model and Campion et al.'s (1993) model. It has been tested with a relatively large degree of success in non-optimal conditions and has produced a number of significant paths and high correlations. Further research on a more tightly controlled sample may produce better, more generalisable results.

The team characteristics in the integrated model showed relationships to the various measures of team effectiveness with the exception of the context characteristic. As discussed earlier, this lack of relationship may suggest that a team's context is not as important in determining team effectiveness. The other independent characteristics all had at least one relationship with the dependent characteristics. The hypothesised relationship between quality of work life and withdrawal behaviours was supported.

The integrated model was tested with success in New Zealand although the results were not as similar to Cohen et al.'s (1994) study as was hoped. Several reasons exist for these differences in results. The model included variables from both Cohen (1994) and Campion et al. (1993) and was therefore not entirely the same as Cohen et al.'s model. The sample was also different as all team types were included in the integrated model whereas Cohen et al. used exclusively traditionally managed teams. Subtle differences in the statistical methods used may have also accounted for

differences in the results. It is also possible that teams in New Zealand do have different antecedents to effectiveness than teams in the United States of America. Further research will allow firmer conclusions to be reached.

The next chapter will reflect on the limitations of this study and suggest directions for future research.

7. Limitations and Directions for Future Research

This study suffers from a number of limitations as does most applied research. This chapter will discuss these limitations and suggestions will be presented on how to improve this study.

1. Like most other team research, this study has a small sample size which limits the generalisability and strength of the study. This sample size was mainly due to non-response. Future studies should devise methods of gaining a better response rate, such as, using input from team members in the study's design phase to elicit more commitment. A further influence on the small sample size was the requirement that more than one team member responded from each team as in Cohen et al. (1994). In several cases, teams were dropped as only one response was received. Using this response may have provided a biased view of the team, increasing the response rate at the expense of the quality of data.
2. The small sample size of this research also limits the statistical techniques able to be used. Correlational research is inherently weak as the direction of the correlation is unknown. For example, Staw (1975) argues that team members with knowledge of their performance will attribute characteristics to themselves which conform to their internal theory of performance. This study did move one step beyond correlational research by using path analysis. However, a full structural equations analysis was not possible due to the low number of responses (Tabachnick & Fidell, 1989). Future studies with a greater sample size may make use of this more powerful statistical technique.
3. Many different types of teams were included in the integrated study. One consequence of this was a possible confounding of the results. It has been suggested that different types of teams may require different conditions for effectiveness (Cohen et al., 1994; Cohen & Ledford, 1994). Production

teams may require different characteristics from service teams in order to be effective, and self-managing teams may have different antecedents to effectiveness than supervisor-led teams. With a larger sample size, different types of team can be studied using the same model to see if differences exist (for example Cohen et al. (1994) studied traditional teams and self managing teams separately using the same model).

4. This study has a lack of comparable objective data since three very different companies participated in the research. This lack of objectivity also presents a problem with same method bias. With employees providing the only data for the team characteristics, the team's performance, the team member's quality of work life, and the team member's intention to leave, it is entirely possible that the results presented are artificially inflated. Future studies may wish to limit participating teams to one organisation or industry where comparable, objective data is present. This will also act as a control for contextual variables.
5. The cross sectional nature of this study limits the strength of causal influence (Cohen & Ledford, 1994). It neglects to consider the temporal aspects of team effectiveness so that effectiveness is seen as a snapshot in time. Any changes over time are neglected. A call for greater emphasis on temporal aspects of teams has been made by several authors (Gladstein, 1984; Sundstrom et al., 1990; Tannenbaum et al., 1992) and would help enhance our understanding of teams.
6. Some of the variables used in this study may not have been defined as fully as they needed to be. For example, no distinction was made between received and initiated task interdependence whereas in the literature they are clearly stated to have different outcomes. The lack of variable definition in this study is due partly to the need to keep the same structure as the models on which this study is based, and partly to keep the model simple.

7. A possible area for future investigation is the relationship between team task design and absenteeism. This relationship, modelled in Cohen et al.'s (1994) study, was replicated in model six of the path models. However, the path coefficient was positive as opposed to Cohen et al.'s negative value. These two significant relationships in two different studies may indicate that it is worthwhile exploring the possible relationship to a greater extent.

The next chapter will consider the practical and theoretical conclusions that can be made.

8. Conclusions

This study set out to provide an integration of two team effectiveness models that have been used in the current literature, namely Cohen (1994) and Campion et al. (1993). This was achieved through examining the models and the results of their empirical testing.

Although this study suffered from several limitations of applied research it does have several applications. More and more New Zealand companies are using team-based structures (KPMG, 1995), many without considering how to develop effective teams. Research of this nature helps organisations focus on the factors that make teams effective and therefore helps improve both the team and organisational performance, as well as the employees' quality of work life.

The necessary aggregation of the dimensions into characteristics means this study cannot discern which dimension affects which effectiveness criteria. Future research with larger sample sizes may be able to offer this analysis. This study does however, provide an indication to academics and organisations alike, as to where they should be focusing their attention in their search for team effectiveness.

Designing effective tasks and concentrating on the team's processes would appear fruitful areas for organisational attention. These characteristics were significantly related to both performance and quality of work life, so concentrating on them would bring rewards to both the organisation and the employees.

The team's context may not be as important in determining team effectiveness as the other characteristics examined. This suggests that team and individual level characteristics have more influence on effectiveness than the macro level organisational characteristics. The large amount of time and money spent on training and other contextual influences may not provide as much utility as focusing on other characteristics.

Performance, at least as perceived by the team members, appears to be determined by many variables. The most significant are the team processes, followed

by composition, task design, and interdependence. Quality of work life, in contrast, is only predicted by the task design and process characteristics.

An important confirmation for organisations is the significant relationship between quality of work life and withdrawal behaviour (measured by intention to leave which has been repeatedly shown to be one of the antecedents to actual turnover). Intention to leave has a stronger relationship with quality of work life than with any other variable in the model. Organisations need to observe the warning that dissatisfied team members are more likely to leave than any other team member.

Being able to influence both performance and quality of work life is important for organisations as one without the other will lead to instability. Organisations that have high performing teams with low quality of work life will experience high levels of employee turnover while teams that have a higher quality of work life but low performance will lead to the inevitable demise of the organisation.

The challenge to human resource practitioners is twofold. The focus needs to be on both designing motivating tasks and ensuring healthy team processes. Task design interventions have been well documented through the various efforts of Hackman and colleagues, for example Hackman et al. (1975) and Hackman and Oldham (1976). Several of their principles are well established in organisations for example, job enrichment.

Developing team processes, although perhaps more valuable, will prove to be an immensely more difficult task than developing motivating tasks. Team processes are invisible forces that develop between team members and within teams. Some processes are considerably easier to influence than others. For example, innovation can be facilitated by rotating team members to bring in new ideas, by brainstorming, and by conversing with other people connected with the product or service. Conversely, team norms are not as easy to manipulate. Norms may take months, if not years, to change and even then it is not assured that acceptance will be total or that the new norms will survive.

This study suggests that human resource practitioners have two main avenues available for increasing team effectiveness - to design motivating tasks and ensure healthy team processes. However, it must be remembered that a holistic approach is required when dealing with people in organisations. Having motivating tasks is not sufficient if the people recruited into the organisation are only extrinsically motivated. Similarly, healthy team processes will only be maintained if teamwork is valued and rewarded through the remuneration system in the organisation. In essence, the entire human resource management function must be in congruence with both the strategic direction of the organisation and the goal of attaining effective teams.

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Appendixes

Appendix A: Team Member Questionnaire and Dimensions

"Team Survey"

All responses will be **confidential**.

This questionnaire consists of statements about your team and how your team functions.

Section A.

A. What team do you belong to? (Please see the last page) _____

PLEASE CHECK THIS NUMBER - IT IS CRITICAL TO THE STUDY

B. How many people are in your team? (excluding management) _____

C. How old were you on your last birthday? _____ years

D. Are you...
1. Female
2. Male

E. How long have you been with your present employer? ____ years ____ months

F. How long have you been in your present job? ____ years ____ months

G. How long have you been in your present team? ____ years ____ months

H. What is your highest level of schooling? (Please circle)
1. Fourth Form or less
2. Completed Fifth Form
3. Completed Sixth Form
4. Completed Seventh Form
5. Bachelor level or Trade School Course
6. Post-graduate Course

Section B. Please circle the number that best represents your opinion on the statement.

1=Strongly Agree, 2=Agree, 3=Slightly Agree, 4=Neutral, 5=Slightly Disagree, 6=Disagree, 7=Strongly Disagree

	Agree			Neutral			Disagree
1. Members of my team get a chance to learn the different tasks the team performs.	1	2	3	4	5	6	7
2. Our job permits us to be left on our own within the team to do our work.	1	2	3	4	5	6	7
3. As a member of a team, I have a real say in how the team carries out its work.	1	2	3	4	5	6	7
4. Our team's job provides us with an opportunity to find out how well we are doing as a team.	1	2	3	4	5	6	7
5. My team is responsible for all aspects of a product in our area.	1	2	3	4	5	6	7
6. Our job provides us with opportunity for independent thought and action.	1	2	3	4	5	6	7
7. Everyone in my team has the opportunity to do the more interesting tasks.	1	2	3	4	5	6	7
8. Our team's job provides us with the feeling that we know whether we are performing well or poorly as a team.	1	2	3	4	5	6	7
9. My team helps me feel that my work is important to the company.	1	2	3	4	5	6	7
10. The team concept allows all the work on a given product to be completed by the same set of people.	1	2	3	4	5	6	7
11. Our job gives us considerable opportunity for independence and freedom in how we, as a team, do our work.	1	2	3	4	5	6	7
12. My team is designed to let everyone participate in decision making.	1	2	3	4	5	6	7
13. My team's job allows our team to see how our work fits in with or affects whole products or services.	1	2	3	4	5	6	7
14. Most members of my team get a chance to participate in decision making.	1	2	3	4	5	6	7
15. The work performed by my team is important to the customers in my area.	1	2	3	4	5	6	7
16. Our team's job provides feedback on how well we are doing as a team while we are working.	1	2	3	4	5	6	7
17. Day to day, task assignments may change to meet the work load needs of the team.	1	2	3	4	5	6	7
18. My team makes an important contribution to serving the company's customers.	1	2	3	4	5	6	7

Section C.

Please circle the number that best reflects your opinion on the statement.

1=Strongly Agree, 2=Agree, 3=Slightly Agree, 4=Neutral, 5=Slightly Disagree, 6=Disagree, 7=Strongly Disagree

	Agree			Neutral		Disagree	
19. Feedback about how well I am doing my job comes primarily from information about how well the entire team is doing.	1	2	3	4	5	6	7
20. I cannot accomplish my tasks without information or materials from other members of my team.	1	2	3	4	5	6	7
21. My performance evaluation is strongly influenced by how well my team performs.	1	2	3	4	5	6	7
22. My work goals come directly from the goals of my team.	1	2	3	4	5	6	7
23. Other members of my team depend on me for information or materials needed to perform their tasks.	1	2	3	4	5	6	7
24. Within my team, jobs performed by team members are related to one another.	1	2	3	4	5	6	7
25. My work activities on any given day are determined by my team's goals for that day.	1	2	3	4	5	6	7
26. Many rewards from my job (e.g., pay, promotion, etc.) are determined in large part by my contributions as a team member.	1	2	3	4	5	6	7
27. I do very few activities on my job that are not related to the goals of my team.	1	2	3	4	5	6	7

Section D.

Please circle the number that best reflects your opinion on the statement.

1=Strongly Agree, 2=Agree, 3=Slightly Agree, 4=Neutral, 5=Slightly Disagree, 6=Disagree, 7=Strongly Disagree

	Agree			Neutral		Disagree	
28. Our team is the right size to do our work well.	1	2	3	4	5	6	7
29. It is easy for the members of my team to fill in for one another.	1	2	3	4	5	6	7
30. My team is very flexible in terms of changes in membership.	1	2	3	4	5	6	7
31. Members of our team have ample expertise for doing the work of the team.	1	2	3	4	5	6	7

	Agree			Neutral			Disagree
32. There is little turnover of members in our work team.	1	2	3	4	5	6	7
33. The members of my team have skills and abilities that complement each other.	1	2	3	4	5	6	7
34. Most members of my team know each other's jobs.	1	2	3	4	5	6	7
35. Our team is too small to do our work well.	1	2	3	4	5	6	7
36. The members of my team vary widely in their areas of expertise.	1	2	3	4	5	6	7
37. Our team is too big to do our work well.	1	2	3	4	5	6	7
38. Changes in membership are disruptive to the way our work team functions.	1	2	3	4	5	6	7
39. Our team has the right mix of people needed to do the work well.	1	2	3	4	5	6	7
40. Members of our team have the right people skills required for effective team work.	1	2	3	4	5	6	7
41. The members of my team have a variety of different backgrounds and experiences.	1	2	3	4	5	6	7
42. Members of our team do not have the right job/technical skills to do their part of the team's task.	1	2	3	4	5	6	7

Section E.

Please circle the number that best reflects your opinion on the statement.

1=Strongly Agree, 2=Agree, 3=Slightly Agree, 4=Neutral, 5=Slightly Disagree, 6=Disagree, 7=Strongly Disagree

	Agree			Neutral			Disagree
43. The company provides adequate technical/job training for my team.	1	2	3	4	5	6	7
44. My team is kept well informed about its cost performance.	1	2	3	4	5	6	7
45. Teams in the company co-operate to get the work done.	1	2	3	4	5	6	7
46. The physical place where we do our work is adequate for what we have to do.	1	2	3	4	5	6	7
47. My team is kept well informed about new technologies that may affect us.	1	2	3	4	5	6	7
48. Higher management in the company supports the concept of teams.	1	2	3	4	5	6	7
49. The company provides adequate team problem solving and decision making training for my team.	1	2	3	4	5	6	7
50. My team is kept well informed about its quality performance.	1	2	3	4	5	6	7

	Agree			Neutral			Disagree
51. The company provides adequate team skills training for my team (e.g., communication, organisation, interpersonal, etc.).	1	2	3	4	5	6	7
52. My team is kept well informed about organisational changes that may affect us.	1	2	3	4	5	6	7
53. My team is kept well informed about our competitors' performance.	1	2	3	4	5	6	7
54. The company provides adequate quality and customer service training for my team.	1	2	3	4	5	6	7
55. I frequently talk to other people in the company besides the people on my team.	1	2	3	4	5	6	7
56. My manager supports the concept of teams.	1	2	3	4	5	6	7
57. There is little competition between my team and other teams in the company.	1	2	3	4	5	6	7
58. Our work team has all the materials, supplies and equipment we need to perform our task.	1	2	3	4	5	6	7
59. The company provides adequate leadership training for my team.	1	2	3	4	5	6	7

Section F.

Please circle the number that best reflects your opinion on the statement.

1=Strongly Agree, 2=Agree, 3=Slightly Agree, 4=Neutral, 5=Slightly Disagree, 6=Disagree, 7=Strongly Disagree

	Agree			Neutral			Disagree
60. Behaviour in our work team is very orderly - it is clear what members are expected to do, and they do it.	1	2	3	4	5	6	7
61. Teams enhance communication among people working on the same product.	1	2	3	4	5	6	7
62. Members of my team have great confidence that the team can perform effectively.	1	2	3	4	5	6	7
63. Everyone on my team does their fair share of the work.	1	2	3	4	5	6	7
64. Members of my team help each other out at work when needed.	1	2	3	4	5	6	7
65. When a non-routine matter comes up in our work, we are quite adept at inventing new ways to handle the situation.	1	2	3	4	5	6	7
66. My team can take on nearly any assigned task and complete it.	1	2	3	4	5	6	7
67. Members of my team are very willing to share information with other team members about our work.	1	2	3	4	5	6	7

	Agree			Neutral			Disagree
68. My team increases my opportunities for positive social interaction.	1	2	3	4	5	6	7
69. Our work team is highly imaginative in thinking about new or better ways we might perform our task.	1	2	3	4	5	6	7
70. No one in my team depends on other team members to do the work for them.	1	2	3	4	5	6	7
71. Being in my team gives me the opportunity to work as a team and provide support to other team members.	1	2	3	4	5	6	7
72. Members of my team co-operate to get the work done.	1	2	3	4	5	6	7
73. My team has a lot of team spirit.	1	2	3	4	5	6	7
74. It is clear in our work team what is acceptable behaviour and what is not acceptable.	1	2	3	4	5	6	7
75. Nearly all the members on my team contribute equally to the work.	1	2	3	4	5	6	7

Section G.

Please circle the number that best reflects your opinion on the statement.

1=Strongly Agree, 2=Agree, 3=Slightly Agree, 4=Neutral, 5=Slightly Disagree, 6=Disagree, 7=Strongly Disagree

	Agree			Neutral			Disagree
76. My team is effective at producing a high quality product or service.	1	2	3	4	5	6	7
77. My team is effective at increasing productivity.	1	2	3	4	5	6	7
78. My team is effective at maintaining safe working conditions.	1	2	3	4	5	6	7
79. My team is effective at controlling costs.	1	2	3	4	5	6	7
80. My team is effective at customer service.	1	2	3	4	5	6	7
81. My team is efficient.	1	2	3	4	5	6	7
82. My team is effective at innovation.	1	2	3	4	5	6	7
83. My team is effective at co-operating with non-team members.	1	2	3	4	5	6	7
84. Generally, my team is effective.	1	2	3	4	5	6	7

Section H.

Please circle the number that best reflects your opinion on the statement.

1=Strongly Agree, 2=Agree, 3=Slightly Agree, 4=Neutral, 5=Slightly Disagree, 6=Disagree, 7=Strongly Disagree

		Agree			Neutral		Disagree	
85.	I am satisfied with my job.	1	2	3	4	5	6	7
86.	I prefer working in teams to traditional work methods.	1	2	3	4	5	6	7
87.	People here feel you can't trust the management of this organisation.	1	2	3	4	5	6	7
88.	I am willing to put in a great deal of effort beyond what is normally expected to help my company be successful.	1	2	3	4	5	6	7
89.	I am satisfied with the chances I have to take part in decision making.	1	2	3	4	5	6	7
90.	I am satisfied with the friendliness of the people I work with.	1	2	3	4	5	6	7
91.	I am satisfied with the opportunities I have as a member of this team.	1	2	3	4	5	6	7
92.	I like working in my work team.	1	2	3	4	5	6	7
93.	I am satisfied with the chances I have to learn new things.	1	2	3	4	5	6	7
94.	I find that my values and my company's values are very similar.	1	2	3	4	5	6	7
95.	I am satisfied with the chances I have to do something that makes me feel good about myself as a person.	1	2	3	4	5	6	7
96.	I am satisfied with my work team.	1	2	3	4	5	6	7
97.	I feel I can trust people in my organisation.	1	2	3	4	5	6	7
98.	Overall, I like working for this organisation.	1	2	3	4	5	6	7
99.	I am satisfied with the chances I have to work with others.	1	2	3	4	5	6	7
100.	There is not much to be gained by sticking with my company indefinitely.	1	2	3	4	5	6	7
101.	I am satisfied with the chances I have to accomplish something worthwhile.	1	2	3	4	5	6	7
102.	I intend to leave this organisation.	1	2	3	4	5	6	7

Thank you very much for completing this questionnaire. We appreciate the time you have taken to do so.

Team Member Questionnaire Dimensions

Section B - Task Design

Variety.

1. Members of my team get a chance to learn the different tasks the team performs.
7. Everyone in my team has the opportunity to do the more interesting tasks.
17. Day to day, task assignments may change to meet the work load needs of the team.

Identity.

5. My team is responsible for all aspects of a product in our area.
10. The team concept allows all the work on a given product to be completed by the same set of people.
13. My team's job allows our team to see how our work fits in with or affects whole products or services.

Significance.

9. My team helps me feel that my work is important to the company.
15. The work performed by my team is important to the customers in my area.
18. My team makes an important contribution to serving the company's customers.

Autonomy.

2. Our job permits us to be left on our own within the team to do our work.
6. Our job provides us with opportunity for independent thought and action.
11. Our job gives us considerable opportunity for independence and freedom in how we, as a team, do our work.

Feedback.

4. Our team's job provides us with an opportunity to find out how well we are doing as a team.
8. Our team's job provides us with the feeling that we know whether we are performing well or poorly as a team.
16. Our team's job provides feedback on how well we are doing as a team while we are working.

Participation in decision making.

3. As a member of a team, I have a real say in how the team carries out its work.
12. My team is designed to let everyone participate in decision making.
14. Most members of my team get a chance to participate in decision making.

Section C - Interdependence

Task.

20. I cannot accomplish my tasks without information or materials from other members of my team.
23. Other members of my team depend on me for information or materials needed to perform their tasks.
24. Within my team, jobs performed by team members are related to one another.

Goal.

22. My work goals come directly from the goals of my team.
25. My work activities on any given day are determined by my team's goals for that day.
27. I do very few activities on my job that are not related to the goals of my team.

Feedback and rewards.

19. Feedback about how well I am doing my job comes primarily from information about how well the entire team is doing.
21. My performance evaluation is strongly influenced by how well my team performs.
26. Many rewards from my job (e.g., pay, promotion, etc.) are determined in large part by my contributions as a team member.

Section D - Composition

Relative size.

28. Our team is the right size to do our work well.

Heterogeneity.

33. The members of my team have skills and abilities that complement each other.
36. The members of my team vary widely in their areas of expertise.
41. The members of my team have a variety of different backgrounds and experiences.

Flexibility.

29. It is easy for the members of my team to fill in for one another.
30. My team is very flexible in terms of changes in membership.
34. Most members of my team know each other's jobs.

Stability.

32. There is little turnover of members in our work team.
38. Changes in membership are disruptive to the way our work team functions.

Expertise.

31. Members of our team have ample expertise for doing the work of the team.
39. Our team has the right mix of people needed to do the work well.
40. Members of our team have the right people skills required for effective team work.
42. Members of our team do not have the right job/technical skills to do their part of the team's task. *

35. Our team is too small to do our work well. *
37. Our team is too big to do our work well. *

Section E - Context

Training.

43. The company provides adequate technical/job training for my team.
49. The company provides adequate team problem solving and decision making training for my team.
51. The company provides adequate team skills training for my team (e.g., communication, organisation, interpersonal, etc.).
54. The company provides adequate quality and customer service training for my team.
59. The company provides adequate leadership training for my team.

Resources.

46. The physical place where we do our work is adequate for what we have to do.
58. Our work team has all the materials, supplies and equipment we need to perform our task.

Management support.

48. Higher management in the company supports the concept of teams.

56. My manager supports the concept of teams.

Information.

44. My team is kept well informed about its cost performance.

47. My team is kept well informed about new technologies that may affect us.

50. My team is kept well informed about its quality performance.

52. My team is kept well informed about organisational changes that may affect us.

53. My team is kept well informed about our competitors' performance.

Communication and co-operation between teams.

45. Teams in the company co-operate to get the work done.

55. I frequently talk to other people in the company besides the people on my team.

57. There is little competition between my team and other teams in the company.

Section F - Process

Norms.

60. Behaviour in our work team is very orderly - it is clear what members are expected to do, and they do it.

74. It is clear in our work team what is acceptable behaviour and what is not acceptable.

Potency.

62. Members of my team have great confidence that the team can perform effectively.

66. My team can take on nearly any assigned task and complete it.

73. My team has a lot of team spirit.

Innovation.

65. When a non-routine matter comes up in our work, we are quite adept at inventing new ways to handle the situation.

69. Our work team is highly imaginative in thinking about new or better ways we might perform our task.

Social support.

64. Members of my team help each other out at work when needed.

68. My team increases my opportunities for positive social interaction.

71. Being in my team gives me the opportunity to work as a team and provide support to other team members.

Communication and co-operation within the team.

61. Teams enhance communication among people working on the same product.

67. Members of my team are very willing to share information with other team members about our work.

72. Members of my team co-operate to get the work done.

Workload sharing.

63. Everyone on my team does their fair share of the work.

70. No one in my team depends on other team members to do the work for them.

75. Nearly all the members on my team contribute equally to the work.

Section G - Performance

Increasing quality.

76. My team is effective at producing a high quality product or service.

Increasing productivity.

77. My team is effective at increasing productivity.

Increasing safety.

78. My team is effective at maintaining safe working conditions.

Controlling costs.

79. My team is effective at controlling costs.

Customer service.

80. My team is effective at customer service.

Efficiency.

81. My team is efficient.

Innovation.

82. My team is effective at innovation.

Co-operation with non-team members.

83. My team is effective at co-operating with non-team members.

84. Generally, my team is effective.

Section H - Quality of Work Life

Job satisfaction.

85. I am satisfied with my job.

98. Overall, I like working for this organisation.

Team satisfaction.

86. I prefer working in teams to traditional work methods.

92. I like working in my work team.

96. I am satisfied with my work team.

Social satisfaction.

90. I am satisfied with the friendliness of the people I work with.

91. I am satisfied with the opportunities I have as a member of this team.

99. I am satisfied with the chances I have to work with others.

Growth satisfaction.

89. I am satisfied with the chances I have to take part in decision making.

93. I am satisfied with the chances I have to learn new things.

95. I am satisfied with the chances I have to do something that makes me feel good about myself as a person.

101. I am satisfied with the chances I have to accomplish something worthwhile.

Trust in management.

87. People here feel you can't trust the management of this organisation. *

97. I feel I can trust people in my organisation.

Organisational commitment.

88. I am willing to put in a great deal of effort beyond what is normally expected to help my company be successful.

94. I find that my values and my company's values are very similar.

100. There is not much to be gained by sticking with my company indefinitely. *

Intention to leave.

102. I intend to leave this organisation.

* = Reversed Scored.

Appendix B: Manager Questionnaire and Dimensions

"Team Survey"

All responses will be **confidential**.

Please rate your team on the following statements. Rate only one team per questionnaire.

Section One.

A. What team are you rating? (Please see the last page) _____

PLEASE CHECK THIS NUMBER - IT IS VITAL FOR THE STUDY

B. How many people are in this team? (excluding management) _____

C. How long have you been the manager for this team? ___ years ___ months

D. How long has this team been in operation? ___ years ___ months

Section Two.

Please circle the number that best reflects your opinion on the statement.

1=Strongly Agree, 2=Agree, 3=Slightly Agree, 4=Neutral, 5=Slightly Disagree, 6=Disagree, 7=Strongly Disagree

	Agree			Neutral		Disagree	
1. This team produces a high quality product or service.	1	2	3	4	5	6	7
2. If a non-routine matter comes up in their work, this work team is quite adept at inventing new ways to handle the situation.	1	2	3	4	5	6	7
3. This work team keeps costs to an acceptable level.	1	2	3	4	5	6	7
4. This work team is constantly striving to meet their customer's needs.	1	2	3	4	5	6	7
5. This team is effective at increasing productivity (ratio of inputs to outputs).	1	2	3	4	5	6	7
6. This work team co-operates well with other teams it has contact with.	1	2	3	4	5	6	7
7. This work team is constantly trying to increase the quality of their product or service.	1	2	3	4	5	6	7
8. This work team works hard enough to get the task done well.	1	2	3	4	5	6	7
9. This team is highly imaginative in thinking about new or better ways to perform their task.	1	2	3	4	5	6	7

	Agree			Neutral			Disagree
10. The methods and procedures that this team uses are appropriate for the tasks they have to perform.	1	2	3	4	5	6	7
11. Generally, this is an effective team.	1	2	3	4	5	6	7
12. This work team willingly shares needed resources with other teams.	1	2	3	4	5	6	7
13. Customer service is not a major concern for this work team.	1	2	3	4	5	6	7
14. This team is effective at maintaining safe working conditions.	1	2	3	4	5	6	7
15. This work team's dealings with other teams go smoothly.	1	2	3	4	5	6	7
16. This team is effective at meeting deadlines.	1	2	3	4	5	6	7

Thank you very much for completing this questionnaire. We appreciate the time you have taken to do so.

Manager Questionnaire Dimensions

Section Two - Manager Judgement

Quality.

1. This team produces a high quality product or service.
7. This work team is constantly trying to increase the quality of their product or service.

Customer service.

4. This work team is constantly striving to meet their customer's needs.
13. Customer service is not a major concern for this work team. *

Productivity.

5. This team is effective at increasing productivity (ratio of inputs to outputs).
8. This work team works hard enough to get the task done well.
10. The methods and procedures that this team uses are appropriate for the tasks they have to perform.

Efficiency.

3. This work team keeps costs to an acceptable level.
16. This team is effective at meeting deadlines.

Innovation/Initiative

2. If a non-routine matter comes up in their work, this work team is quite adept at inventing new ways to handle the situation.
9. This team is highly imaginative in thinking about new or better ways to perform their task.

Co-operation with non-team members.

6. This work team co-operates well with other teams it has contact with.

12. This work team willingly shares needed resources with other teams.

15. This work team's dealings with other teams go smoothly.

Safety.

14. This team is effective at maintaining safe working conditions.

11. Generally, this is an effective team.

* = Reversed Scored.

Appendix C: Information Sheet

"The Relationship Between Team Characteristics and Effectiveness"

INFORMATION SHEET

Who are we?

Hi, my name is Kerri Little, and I'm a student at Massey University in Albany. This study is being conducted as part of the requirements for my Masters degree in Human Resource Management. My supervisor for this study is Dr. Hillary Bennett, a lecturer at Massey University, Albany. This study is independent from your organisation and is being funded through the University.

The Study.

This study is to explore how things like training, task interdependence, and size impact on team satisfaction and performance. We have selected your organisation to take part as it is a team-based organisation. Hence, you are invited to take part in this study.

Your Involvement.

If you agree to participate in this study, please fill out the attached questionnaire about your team and return it in the freepost envelope to the University. The questionnaire can be completed in your own time and should take between 20 and 30 minutes. This study is voluntary and it is assumed that filling in the questionnaire implies consent.

Your immediate manager will also be asked questions about how well they think your team functions. This information will be about the whole team, not individuals within the teams.

In order to allocate individual questionnaires to the teams, you will be asked to select a code that represents your team from the list provided. Managers will also be asked to do this. This is not to identify you but to match the data to the teams.

At the end of the study, a brief summary of the results will be available through your organisation so you can see how the study went.

Anonymity and Confidentiality.

The questionnaires will be completely confidential and anonymous. You will not be asked to put your name on the questionnaire therefore once you complete it, you will not be approached again.

Once all of the questionnaires have been completed, the data will be combined together for each team. If only one team member replies, the team will not be used. This is to ensure that your answers cannot be identified. Your name will not appear in the study nor will anyone be able to recognise your answers.

To avoid teams being recognised, all of the teams will be coded with the researcher having the only access to the codes. Hence, no one will be able to identify your team. All reported data will be aggregated at the team level so no individual responses will be used.

All of the data from the study will be stored in a secure place at the University and will be destroyed at the end of the study.

Any information that you give in the questionnaire will be confidential to the study and any publications arising from it. Your manager will only receive the final summary using aggregated data, which will also be available to you. Your manager will not be able to identify you or your team from the summary.

Your organisation will not have their name published in the final report, only a general industry description will be used. This is to further protect your anonymity.

Your Rights.

After reading this information sheet, you have the right to decide you do not want to participate. If you do agree to participate, you have the right to pull out at any time. You can also refuse to answer any questions in the questionnaire. You may ask questions about the study at any time during your participation.

How to Contact Us.

If you have any questions, we can be contacted by ringing Massey University at Albany. Hillary's office number is (09) 443-9365. Any correspondence for Kerri can be left with Hillary.

We can also be contacted through the mail:

Kerri Little,

c/o Hillary Bennett,

Psychology Department,

Massey University (Albany),

Private Bag 102-904,

North Shore Mail Centre,

Auckland.

Thank you for reading this Information Sheet. If you have any questions at this stage, please don't hesitate to contact me.

Kerri Little.

Appendix D: Follow up Letter

"The Relationship Between Team Characteristics and Effectiveness"

Dear Team Member/Manager,

Approximately two weeks ago you would have received your questionnaire about team effectiveness. This is a reminder that if you haven't sent back your completed questionnaire in the freepost envelope, it is now time to do so. If you have returned your questionnaire, we do appreciate it and apologise for this letter. We value everyone's contribution so to have your say, please return your questionnaire now.

If you have any questions, please contact us. If you have misplaced your questionnaire, please see your manager to receive another. Thank you for your time and effort and for choosing to help us in our study.

Yours sincerely,

Kerri Little.

Appendix E: Intercorrelations of the Dimensions

Table 10.1
Intercorrelations of the Dimensions (5 pages) (n=91).

	1.	2.	3.	4.	5.	6.	7.	8.	9.
Task Design									
1. Variety	1.00								
2. Identity	.46**	1.00							
3. Significance	.55**	.38**	1.00						
4. Autonomy	.48**	.46**	.30**	1.00					
5. Feedback	.72**	.53**	.59**	.39**	1.00				
6. Part. in Decision Making	.62**	.46**	.36**	.60**	.65**	1.00			
Interdependence									
7. Task	.35**	.26*	.34**	.18	.41**	.41**	1.00		
8. Goal	.31**	.17	.34**	.00	.45**	.14	.47**	1.00	
9. Feedback and Rewards	.36**	.48**	.34**	.24*	.48**	.33**	.54**	.49**	1.00
Composition									
10. Relative Size	.28**	.37**	.23*	.39**	.44**	.43**	.21*	.11	.23*
11. Heterogeneity	.40**	.28**	.36**	.19	.48**	.28**	.40**	.25*	.33**
12. Flexibility	.28**	.39**	.20	.29**	.37**	.27**	.25*	.19	.30**
13. Stability	.08	.07	-.10	-.05	.11	.24*	.23*	.08	.01
14. Expertise	.39**	.38**	.32**	.28**	.41**	.40**	.11	.23*	.29**
Context									
15. Training	.54**	.40**	.35**	.34**	.62**	.48**	.27*	.29**	.39**
16. Resources	.43**	.39**	.43**	.45**	.50**	.47**	.27*	.25*	.30**
17. Management Support	.37**	.35**	.31**	.35**	.49**	.46**	.32**	.32**	.36**
18. Information	.54**	.42**	.39**	.33**	.68**	.64**	.42**	.28**	.45**
19. Com./Co-op. between Teams	.41**	.23*	.21*	.32**	.35**	.45**	.11	.12	.21*
Process									
20. Norms	.38**	.29**	.34**	.19	.41**	.26*	.17	.39**	.39**
21. Potency	.50**	.35**	.48**	.31**	.50**	.41**	.29**	.36**	.44**
22. Innovation	.55**	.35**	.54**	.27*	.50**	.36**	.37**	.26*	.37**
23. Social Support	.48**	.39**	.57**	.23*	.54**	.38**	.27*	.38**	.52**
24. Com./Co-op. within Team	.58**	.31**	.49**	.24*	.56**	.42**	.30**	.27*	.42**
25. Workload Sharing	.28**	.31**	.35**	.09	.34**	.14	.20	.33**	.43**
Performance									
26. Controlling Costs	.35**	.38**	.26*	.37**	.39**	.45**	.21*	.10	.22*
27. Increasing Productivity	.50**	.46**	.43**	.28**	.52**	.37**	.20	.31**	.32**
28. Increasing Quality	.41**	.24*	.48**	.18	.40**	.28**	.18	.22*	.26*
29. Increasing Safety	.41**	.39**	.35**	.39**	.38**	.39**	.14	.20	.17
Managerial Judgement									
30. Quality	.27*	.13	.16	.26	.25	.34*	.17	-.06	.09
31. Customer Service	.23	.08	.11	.33*	.22	.48**	.19	-.18	-.01
32. Productivity	.23	.05	-.04	.18	.24	.56**	.20	-.23	-.21
33. Efficiency	.37**	.12	.12	.12	.37**	.55**	.22	-.09	-.04
34. Innovation/Initiative	.14	.14	.09	.32*	.19	.33*	.09	-.16	-.08
35. Co-op. w. Non-Team Memb.	.36**	.11	.21	.22	.34**	.46**	.28*	-.06	.07
36. Safety	.37**	.08	.27*	.12	.36**	.40**	.24	-.09	.08
Quality of Work Life									
37. Job Satisfaction	.43**	.44**	.47**	.34**	.41**	.31**	.17	.14	.36**
38. Team Satisfaction	.41**	.26*	.36**	.29**	.46**	.34**	.08	.24*	.23*
39. Social Satisfaction	.54**	.39**	.62**	.41**	.54**	.57**	.16	.14	.36**
40. Growth Satisfaction	.62**	.46**	.56**	.48**	.61**	.63**	.35**	.32**	.43**
41. Trust in Management	.14	.26*	.22*	.34**	.18	.24*	.17	.03	.18
42. Organisational Commitment	.42**	.15	.48**	.29**	.34**	.27*	.07	.20	.20
Withdrawal Behaviour									
43. Intention to Leave	-.10	-.18	-.20	-.09	-.05	.02	-.08	-.04	-.27**

	10.	11.	12.	13.	14.	15.	16.	17.	18.
Task Design									
1. Variety									
2. Identity									
3. Significance									
4. Autonomy									
5. Feedback									
6. Part. in Decision Making									
Interdependence									
7. Task									
8. Goal									
9. Feedback and Rewards									
Composition									
10. Relative Size	1.00								
11. Heterogeneity	.32**	1.00							
12. Flexibility	.59**	.43**	1.00						
13. Stability	.23*	.26*	.12	1.00					
14. Expertise	.48**	.47**	.57**	.16	1.00				
Context									
15. Training	.57**	.22*	.41**	.13	.35**	1.00			
16. Resources	.53**	.27**	.42**	.12	.44**	.57**	1.00		
17. Management Support	.39**	.30**	.34**	.21*	.46**	.49**	.47**	1.00	
18. Information	.53**	.31**	.37**	.28**	.33**	.80**	.58**	.55**	1.00
19. Com./Co-op. between Teams	.38**	.29**	.16	.14	.36**	.54**	.36**	.47**	.54**
Process									
20. Norms	.26*	.51**	.33**	.12	.62**	.29**	.26*	.42**	.30**
21. Potency	.42**	.52**	.38**	.11	.63**	.45**	.30**	.36**	.44**
22. Innovation	.34**	.50**	.29**	.15	.38**	.42**	.22*	.22*	.48**
23. Social Support	.27**	.47**	.35**	.03	.61**	.42**	.36**	.38**	.43**
24. Com./Co-op. within Team	.33**	.53**	.34**	.17	.56**	.47**	.32**	.36**	.48**
25. Workload Sharing	.30**	.41**	.39**	.14	.57**	.34**	.31**	.30**	.30**
Performance									
26. Controlling Costs	.54**	.26*	.27**	.28**	.47**	.31**	.47**	.45**	.44**
27. Increasing Productivity	.41**	.46**	.43**	.12	.62**	.40**	.47**	.32**	.37**
28. Increasing Quality	.26*	.57**	.39**	.11	.59**	.17	.27**	.23*	.17
29. Increasing Safety	.37**	.26*	.29**	.15	.55**	.31**	.46**	.45**	.33**
Managerial Judgement									
30. Quality	.33*	-.01	-.06	.00	.05	.35**	.23	.05	.33*
31. Customer Service	.47**	.07	.02	.06	.12	.37**	.29*	.14	.37**
32. Productivity	.50**	.14	.10	.23	.19	.36**	.40**	.24	.41**
33. Efficiency	.45**	.15	.03	.19	.22	.44**	.38**	.15	.47**
34. Innovation/Initiative	.23	.01	-.02	-.10	-.07	.10	.12	-.02	.22
35. Co-op. w. Non-Team Memb.	.35**	.11	.08	.01	.12	.37**	.33*	.07	.39**
36. Safety	.40**	.26	.02	.19	.20	.42**	.26	.10	.47**
Quality of Work Life									
37. Job Satisfaction	.35**	.35**	.31**	.03	.48**	.41**	.39**	.34**	.37**
38. Team Satisfaction	.29**	.44**	.29**	.01	.64**	.31**	.26*	.28**	.24*
39. Social Satisfaction	.34**	.25*	.27**	-.04	.53**	.44**	.42**	.31**	.44**
40. Growth Satisfaction	.40**	.28**	.34**	.03	.47**	.60**	.47**	.31**	.61**
41. Trust in Management	.43**	.04	.28**	-.09	.29**	.29**	.38**	.31**	.35**
42. Organisational Commitment	.23*	.08	.20	-.26*	.38**	.43**	.31**	.29**	.28**
Withdrawal Behaviour									
43. Intention to Leave	-.05	-.04	-.09	.09	-.19	-.11	-.07	-.04	-.08

* $p < .05$
** $p < .01$

	19.	20.	21.	22.	23.	24.	25.	26.	27.
Task Design									
1. Variety									
2. Identity									
3. Significance									
4. Autonomy									
5. Feedback									
6. Part. in Decision Making									
Interdependence									
7. Task									
8. Goal									
9. Feedback and Rewards									
Composition									
10. Relative Size									
11. Heterogeneity									
12. Flexibility									
13. Stability									
14. Expertise									
Context									
15. Training									
16. Resources									
17. Management Support									
18. Information									
19. Com./Co-op. between Teams	1.00								
Process									
20. Norms	.52**	1.00							
21. Potency	.58**	.78**	1.00						
22. Innovation	.48**	.60**	.76**	1.00					
23. Social Support	.47**	.72**	.86**	.68**	1.00				
24. Com./Co-op. within Team	.60**	.74**	.85**	.80**	.81**	1.00			
25. Workload Sharing	.40**	.80**	.75**	.59**	.76**	.67**	1.00		
Performance									
26. Controlling Costs	.43**	.46**	.52**	.41**	.43**	.46**	.40**	1.00	
27. Increasing Productivity	.38**	.59**	.63**	.47**	.65**	.61**	.55**	.58**	1.00
28. Increasing Quality	.28**	.67**	.66**	.49**	.68**	.62**	.60**	.40**	.74**
29. Increasing Safety	.40**	.56**	.52**	.37**	.46**	.43**	.42**	.68**	.66**
Managerial Judgement									
30. Quality	.33*	.21	.29*	.41**	.22	.35**	.29*	.24	.31*
31. Customer Service	.35**	.12	.27*	.35**	.13	.33*	.13	.38**	.31*
32. Productivity	.40**	-.02	.10	.14	-.01	.17	.01	.44**	.26
33. Efficiency	.44**	.20	.30*	.37**	.22	.41**	.25	.42**	.37**
34. Innovation/Initiative	.10	-.04	.00	.18	-.07	.03	-.05	.03	.18
35. Co-op. w. Non-Team Memb.	.32*	.16	.27*	.40**	.18	.36**	.16	.24	.34**
36. Safety	.47**	.36**	.51**	.61**	.37**	.61**	.34*	.42**	.41**
Quality of Work Life									
37. Job Satisfaction	.46**	.48**	.58**	.41**	.59**	.51**	.44**	.25*	.39**
38. Team Satisfaction	.45**	.63**	.65**	.43**	.61**	.63**	.50**	.26*	.52**
39. Social Satisfaction	.43**	.41**	.60**	.50**	.66**	.57**	.38**	.33**	.47**
40. Growth Satisfaction	.48**	.46**	.60**	.56**	.60**	.57**	.37**	.36**	.51**
41. Trust in Management	.30**	.17	.28**	.29**	.22*	.24*	.19	.27*	.18
42. Organisational Commitment	.34**	.31**	.39**	.26*	.40**	.40**	.23*	.13	.28**
Withdrawal Behaviour									
43. Intention to Leave	-.08	-.18	-.24*	-.10	-.28**	-.20	-.18	-.03	-.07

* $p < .05$
** $p < .01$

	28.	29.	30.	31.	32.	33.	34.	35.	36.
Task Design									
1. Variety									
2. Identity									
3. Significance									
4. Autonomy									
5. Feedback									
6. Part. in Decision Making									
Interdependence									
7. Task									
8. Goal									
9. Feedback and Rewards									
Composition									
10. Relative Size									
11. Heterogeneity									
12. Flexibility									
13. Stability									
14. Expertise									
Context									
15. Training									
16. Resources									
17. Management Support									
18. Information									
19. Com./Co-op. between Teams									
Process									
20. Norms									
21. Potency									
22. Innovation									
23. Social Support									
24. Com./Co-op. within Team									
25. Workload Sharing									
Performance									
26. Controlling Costs									
27. Increasing Productivity									
28. Increasing Quality	1.00								
29. Increasing Safety	.57**	1.00							
Managerial Judgement									
30. Quality	.17	.11	1.00						
31. Customer Service	.17	.19	.90**	1.00					
32. Productivity	.14	.27*	.61**	.77**	1.00				
33. Efficiency	.25	.29*	.78**	.84**	.90**	1.00			
34. Innovation/Initiative	.10	-.04	.80**	.70**	.47**	.54**	1.00		
35. Co-op. w. Non-Team Memb.	.21	.14	.87**	.88**	.74**	.86**	.75**	1.00	
36. Safety	.32*	.24	.75**	.83**	.64**	.81**	.50**	.84**	1.00
Quality of Work Life									
37. Job Satisfaction	.36**	.27*	.08	.01	-.04	.08	-.03	.12	.23
38. Team Satisfaction	.52**	.41**	.07	.07	.00	.14	-.04	.14	.24
39. Social Satisfaction	.42**	.43**	.16	.16	.09	.24	.04	.29*	.35**
40. Growth Satisfaction	.40**	.43**	.34*	.33*	.20	.38**	.24	.44**	.45**
41. Trust in Management	.13	.30**	.17	.16	.19	.15	.19	.15	.16
42. Organisational Commitment	.17	.18	.18	.14	.07	.16	.06	.19	.22
Withdrawal Behaviour									
43. Intention to Leave	-.07	-.02	-.04	.09	.14	.03	.12	.10	-.03

* $p < .05$
** $p < .01$

	37.	38.	39.	40.	41.	42.	43.
Task Design							
1. Variety							
2. Identity							
3. Significance							
4. Autonomy							
5. Feedback							
6. Part. in Decision Making							
Interdependence							
7. Task							
8. Goal							
9. Feedback and Rewards							
Composition							
10. Relative Size							
11. Heterogeneity							
12. Flexibility							
13. Stability							
14. Expertise							
Context							
15. Training							
16. Resources							
17. Management Support							
18. Information							
19. Com./Co-op. between Teams							
Process							
20. Norms							
21. Potency							
22. Innovation							
23. Social Support							
24. Com./Co-op. within Team							
25. Workload Sharing							
Performance							
26. Controlling Costs							
27. Increasing Productivity							
28. Increasing Quality							
29. Increasing Safety							
Managerial Judgement							
30. Quality							
31. Customer Service							
32. Productivity							
33. Efficiency							
34. Innovation/Initiative							
35. Co-op. w. Non-Team Memb.							
36. Safety							
Quality of Work Life							
37. Job Satisfaction	1.00						
38. Team Satisfaction	.64**	1.00					
39. Social Satisfaction	.71**	.70**	1.00				
40. Growth Satisfaction	.66**	.57**	.82**	1.00			
41. Trust in Management	.28**	.05	.25*	.24*	1.00		
42. Organisational Commitment	.60**	.47**	.53**	.58**	.24*	1.00	
Withdrawal Behaviour							
43. Intention to Leave	-.49**	-.17	-.19	-.27**	-.12	-.58**	1.00

* $p < .05$
** $p < .01$