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WEBSTER UNIVERSITY

School of Business and Technology

Disquisition Committee:

Gary Renz, Ph.D., Chairperson
Nicholas J. DiMarco, Ph. D.
D. Christopher Risker, Ph. D.

A STUDY OF THE RELATIONSHIP BETWEEN PARTICIPATION IN EMPLOYER-PROVIDED PROFESSIONAL DEVELOPMENT PROGRAMS AND PROJECT MANAGERS' INTRINSIC MOTIVATION, JOB SATISFACTION AND ORGANIZATIONAL COMMITMENT

By

ANGELA DOROTHY HOLDEN

A disquisition presented to
the School of Business and Technology
at Webster University
in partial fulfillment of the requirements for the degree
Doctor of Management

March 2002

Saint Louis, Missouri

WEBSTER UNIVERSITY

DOCTOR OF MANAGEMENT

Disquisition Approval

To: Dr. D. Christopher Risker, Director
Doctor of Management Program

From: Doctoral Project Committee

Chair: Gary Renz, Ph.D.

Member: Nicholas J. DiMarco, Ph.D.

Member D. Christopher Risker, Ph.D.

Subject: Recommendation for the Award of the Degree of Doctor of Management

We, the Doctoral Project Committee, do certify that the Doctor of Management candidate:

Angela Dorothy Holden

has satisfactorily completed all requirements for the degree of Doctor of Management in the Doctoral Program at Webster University, and do, therefore, recommend that this candidate be awarded the degree of Doctor of Management.

Chair: _____ Date: 03/25/02
Gary Renz, Ph.D

Member: _____ Date: 03/25/02
Nicholas J. DiMarco, Ph.D.

Member: _____ Date: 03/28/02
D. Christopher Risker, Ph.D.

CONCURRENCE:

I do concur with the recommendations of the Doctoral Project Committee as stated above.

_____
D. Christopher Risker, Ph.D., Director
Doctor of Management Program

With Thanks

To my loving husband Dan,
And my children, Nathan and Kristin,
For their encouragement and support

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ABSTRACT OF THE DISQUISITION

A Study of the Relationship
Between Participation in Employer-Provided
Professional Development Programs and Project Managers'
Intrinsic Motivation, Job Satisfaction
and Organizational Commitment

By

Angela Dorothy Holden

Doctor of Management

Webster University in St. Louis, 2002

Gary Renz, Ph.D., Chair

An empirical study was conducted to investigate the relationship between participation in employer-provided professional development programs and the intrinsic motivation, job satisfaction and organizational commitment of a group of 118 project managers. There was sufficient statistical support to conclude that as participation in employer-provided professional development programs increases, the overall job satisfaction and affective commitment of the employee will increase. It was also found that as the perceived helpfulness of training increases, the overall job satisfaction of the employee increases.

Exploratory data were gathered as part of this study to investigate the effects of gender, age, education level, overall project management experience, tenure with current employer, and professional certification status on participation in professional development programs and the resulting employee attitudes. Preliminary findings of the analysis indicate that gender of the employee is an antecedent to participation in professional development programs, where males are more likely to participate than females. Statistically significant relationships between the employee's age, tenure and affective commitment were found. Also, significant positive relationships were found between project management experience and intrinsic motivation. The results of the analysis of the exploratory data indicate which project management professional development programs are most likely to have an impact on the overall job satisfaction and affective commitment of the employee. Finally, limitations of the study and recommendations for further research are discussed.

I. OVERVIEW OF RESEARCH

Research Questions

The research conducted was an empirical study to answer the following research questions:

1. Is there a relationship between participation in employer-provided professional development programs and the intrinsic motivation, job satisfaction and organizational commitment (i.e. Affective Commitment, Continuance Commitment, and Normative Commitment) of a group of project managers?
2. Explore the effect of each of the following variables on the attitudes of project managers:

    a. Gender of the project manager,
    b. Age of the project manager,
    c. Education level of the project manager,
    d. Professional certification status of the project manager,
    e. Overall experience of the project manager,
    f. Project manager's length of employment with the current employer (i.e. tenure),
    g. Industry classification of the organization,
    h. Size of the organization.

An analysis took place to discover if these variables are: i) antecedents to participation in professional development programs, ii) moderators of the relationship between participation in professional development programs and the resulting attitudes, or iii) the main effect on the resulting attitudes.

Background of the Problem

Although a few large organizations with a long history of project-based management devote considerable time and effort to the training and development of project managers, many organizations do not. Turner, Keegan and Crawford (2000) observe that within the engineering construction industry it can take 15 years to develop a project manager capable of managing a $100 million contract. Companies in this industry often identify potential project managers in their mid-twenties and develop them during this time by a variety of formal and informal programs that include structured training and education, certification, mentoring, and on-the-job experience. These project managers are considered key, value-adding resources that provide these companies with a significant competitive advantage and considerable effort is made to retain these human resources (p. 449-450).

Unfortunately, many project managers are not viewed in the same way and do not enjoy this level of commitment to their professional development from their employers. To make matters worse, Martini (1998) notes that project management is often an "accidental profession" for many. In this situation, "inexperienced individuals are thrust into project manager positions without much regard to their likelihood of success" and this can result in failure of the project and losses of several million dollars (p. 2-3).

The notion of "accidental project manager" received further support by Thomas, Delisle and Jugdev (2001) in their recent study of 1,867 project managers. They found that 60.2% of the respondents agreed that the job title "project manager" is usually not

accompanied by increased pay or recognition, and 57.8% agreed that little or no project management training is given to those who take on the role of project manager (p. 10).

Peters and Homer (1996) add more insight as they observe, "Teaching the craft of any profession is a continuing challenge" (p. 5). The authors feel that project management can be more challenging than other professions because project managers are often expected to become immediately productive with very little training. At times, project managers are selected because they have specific technical backgrounds that are applicable to the project, but have little or no project management skills. In this situation, project managers are forced to learn on-the-job and by their mistakes, both of which may be costly for the sponsoring organization or the project manager due to the resulting increase in project risk.

Wideman (1992) defines project risk to be "the cumulative effect of the chances of uncertain occurrences adversely affecting project outcomes" (p. I-3), and lists "management and/or workforce inexperience" as a specific internal, but generally controllable, project risk (p. A-3). According to a project management-training provider (personal communication, December 5, 1999), "60 – 70% of all IT projects fail." Baker (1997) explains, "Projects succeed – or *fail* - in direct proportion to how well they meet – or *fail* to meet – the *evolving* expectations of significant project stakeholders, in the areas of cost, schedule, technical performance and politics" (p.23). Understanding how the professional development of project managers can impact project risk is a priority issue for organizations undertaking project work.

In the present study it was recognized that individuals could achieve their professional development goals by pursuing their interests on their own time, by

participating in employer-provided programs during or after work hours, or a combination of both approaches. However, as the project management body of knowledge is broad, and as the literature tells us that a combination of approaches to the professional development of project managers is most effective, this suggests that a commitment from both the employer and the individual project manager would be necessary to achieve the desired learning and growth. Also, much of a project manager's learning is accomplished on-the-job by planning and executing projects, and by learning from problems and mistakes in post-project reviews. This suggests that management needs to understand and support the project manager's growth process, and should provide the necessary programs to allow the learning and growth to occur.

Previous studies found a significant relationship between employer-provided training programs and job satisfaction among a group of accountants (Saks, 1996), and compared the job satisfaction of project managers and functional managers in a particular organization (Turner, Utley and Westbrook, 1998). The latter study enabled us to understand that personal growth and learning is important to the job satisfaction of project managers. However, the relationship between employer-provided professional development programs and employee attitudes (including intrinsic motivation, job satisfaction and organizational commitment) has not yet been examined by any empirical studies for a group of project managers, and this study proposes to explore the relationship for this group.

Importance of the Study

The field of project management offers many opportunities for scholarly research as it has only been formally recognized as a profession since the 1960's. In a review of project management research literature since this time (Kloppenborg, et al., 2000), it was discovered that 60% of all citations occurred in the 1990s, 29% in the 1980s, 7% in the 1970s and only 1% in the 1960s (p. 53). The same authors also predicted some future directions for project management research including, "increased emphasis on formal project management training and certification and verification of what training really works (p. 55)".

The Project Management Institute Educational Foundation encourages research in the field of project management theory and practice, and published a list of 13 different potential research topics within the category "Professional Development in Project Management" on the Project Management Institute's web site. Also, a review of the existing literature on the professional development of project managers revealed that little or no scholarly research exists which relates the professional development of project managers to intrinsic motivation, job satisfaction or organizational commitment. For these reasons it is thought that this study will make an important contribution to the development of the body of knowledge in this area for a group of project managers.

II. LITERATURE REVIEW AND THEORETICAL PROPOSITIONS

Introduction

To establish the importance of employee development this literature review looks first at how education and training can build competitive advantage, and then explains that skills and knowledge are a form of capital, i.e. "human capital." The scope of the review is then narrowed to discuss how project managers build this capital by developing their skills and knowledge. Finally, the theoretical propositions that form the basis of this study are developed and the constructs are defined, with reference to the relevant literature.

Employee Development and Competitive Advantage

In analyzing how nations build and sustain competitive advantage, Michael Porter (1990) observes that industries spending the most on employee development are often the most competitive. He also argues that spending on education and training is decisive in building a nation's competitive advantage. Education and training are how specialized "factors of production" are created in an industry and on a national level. Although government has an important role in factor creation, Porter notes that firms must invest directly and consistently in factor creation through their own training and research programs and in building infrastructure, to develop the most specialized and often the most important factors of production.

To illustrate this point, Porter describes how Japanese companies have founded their own educational programs to produce highly skilled workers. He then contrasts this to the mindset of some American companies that are hesitant to make such investments because they think that their trained employees will leave the company and their investment will be lost to the competition. Although this may be true, Porter astutely observes that companies investing in their personnel and that are innovative will have a lower turnover of key personnel than others. He then goes on to explain the "big picture" of how employees who leave a company may benefit the national industry by going to work for customers or suppliers, and how failure to invest in factor creation is a serious error in international competition (p. 593-594).

Building Human Capital

Porter's thinking is congruent with Blair and Kochan (2000) who note that the economic value added to the U.S. economy by corporations and other enterprises seems to be increasingly dependent on inputs other than physical capital. They feel that this is driven by the importance of intangible assets such as patents, copyrights, brand names and most importantly, human capital. They describe human capital to be the knowledge, skills, ideas and commitment of the employees. However, Blair and Kochan are concerned that even though human capital is growing in importance as a source of value in many companies, that employment relationships are changing in ways that tend to minimize employee loyalty and commitment. They see temporary work and contract work to be on the rise, and a decline in job security for employees (p. 1-3).

Mirvis (1993) explains that the economist Theodore Schultz first equated skills and knowledge with "human capital." He argues that investments in education and training are critical to a firm's and a nation's productivity growth. Additionally, Mirvis observes that the collective human capital of a firm is further increased by investments in work redesign, participative decision-making, and ongoing career development. Even though studies have confirmed these statements, he notes that the US lags behind Japan and Europe in level of investment, cultural cohesion and employee commitment. Furthermore, US firms spend about 10 times more in new plant and equipment than they do in education and training (p. 3-4).

Schultz (1971) explains why it is not obvious that skills and knowledge are a form of capital. This is because expenditures on education are typically considered to be consumption. However, Schultz contends that expenditures on education should be considered an investment, albeit difficult to measure, because some of this investment may take place in an individual's leisure time or may actually be represented by lost earnings while at school. In this case, the investment is borne by the individual. Schultz also observes that formal education usually does not replace the need for on-the-job-training, and in this case it is the employer who makes the investment (p. 3-4).

Project Management Professional Development Programs

A review of the existing literature on professional development approaches for project managers suggests that a variety of approaches are utilized. For example, Peters and Homer (1996) developed a series of "focused, short-interval simulations" to provide

project managers with the opportunity to develop key project management skills such as "leadership, creating quality, and influencing change" in a workshop environment (p. 5). The simulations were comprised of a set of team-based activities such as war-games, problem solving, or model-building exercises that were intended to provide participants with specific experiences. The authors found that an experiential teaching approach accelerated the learning process in project managers and produced skills in their subjects that were immediately applicable to their projects.

According to Whitten (1999), "The most effective project managers are developed day-to-day, not year-to-year or project mistake-to-project mistake" (p. 17). The author suggests that a project management mentor should assist in this daily experience. The mentor is a more "seasoned" project manager who has already learned how to manage projects through experience, and who is available to the project manager throughout the project management process. In addition to providing ongoing practical help and advice and being available during crisis situations, the mentor guides the project manager by identifying strengths, interests, and areas for professional development.

Another approach is through academic programs. Tomey (1998) discusses the availability of accredited project management degree programs and illustrates their value by the impact on project managers' salaries, ranging from a 6% increase for a bachelor's degree to a 26% increase for a doctorate (p. 39). Christensen (1997) observes that some universities are starting to offer distance learning programs in their graduate project management degree programs "in direct response to strong interest from individuals around the world who are already practitioners, but have seen the need for more formalized training to compete in the job market" (p. 4).

Project Management Professional (PMP) certification is also available through the Project Management Institute. Cabanis' (1998) discussion of the value of professional certification highlights the importance of gaining credentials that are based upon a specific body of knowledge. He asserts that the PMP certification process is "a public assurance of what the field believes is necessary to know in order to practice" (p. 27).

To provide this assurance, PMI sponsored a "Project Management Professional (PMP) Role Delineation Study" (2000) to ensure that the PMP certification exam was content-valid, i.e. the examination properly evaluates the knowledge or skills required to practice project management. The performance domains tested by the PMP certification examination are: initiating the project, planning the project, executing the project, controlling the project, closing the project, and professional responsibility (p. 9-11).

Tomey (1998) asserts that "Education differentiates the professional project manager from the huge mass of people who hold the title of project manager but have limited professional training, education and certification." He observes that these individuals are also in great demand by Fortune 500 companies that have realized the "bottom-line benefits that accrue from effective cross-functional project management" (p. 39). In fact, an increasing number of companies are now requiring project managers to have attained certain levels of education and professional certification as entry-level qualifications for project management positions.

There are many opinions on approaches to the professional development of project managers, but this review suggests that a combination of on-the-job experience and training, mentoring, accredited degree programs and professional certification provide an optimal program for project managers. Additionally, a review of several

course brochures confirmed that project management seminars and conferences are readily available through a variety of training organizations and professional associations. These training opportunities tend to be 2 to 4 days in duration and focus on developing specific project management skills such as risk management, quality management, and managing Information Technology projects. Many training organizations offer public seminars or in-house training programs, and an increasing number of universities are offering distance-learning programs. However, there is little indication of the effectiveness of these training methods or how they may contribute to the intrinsic motivation, job satisfaction or organizational commitment of project managers.

Definition of Constructs and Research Propositions

Project Management Professional Development Programs

For the purposes of this study, the broad construct "participation in project management professional development programs" is defined to encompass participation in a combination of the following programs that are provided by and paid for by the participant's employer:

1. Classroom training in the practice of project management, delivered by the employer's in-house trainers, or as public offerings by training vendors;
2. Project management seminars, symposia or conferences such as those sponsored annually by the PMI;

3. Self study of project management computer-based training products (CBTs) on work time;
4. Self study of project management books on work time;
5. Self study of project management periodicals on work time;
6. Accredited degree programs with project management as the major field of study. Although classes may take place after work hours, the employer is paying for the project manager to participate (i.e. tuition reimbursement program);
7. Internal project management certification program, where the project manager participates in a series of courses or learning experiences to gain a recognized credential or job level within the company;
8. External project management certification program such as the Project Management Professional (PMP) certification offered by PMI. This credential is recognized within the company and outside the company;
9. Formal project management mentoring program, where a mentor is assigned to an individual by the company as part of the program;
10. Informal project management mentoring program, where the individual seeks mentoring on his/her own and maintains an ad-hoc, informal relationship with the mentor;
11. Membership in professional associations for project managers, such as PMI, and the employer pays the membership dues on behalf of the individual;

12. Formal career path for project managers, where the project manager follows a set of structured learning activities, which may include some of the programs mentioned above and may also contain experiential learning activities.

The project management professional development programs listed above are further divided into two sub-categories: "firm-specific" and "general" project management professional development programs. These constructs are explained below.

Firm-Specific Project Management Professional Development Programs

These programs teach firm-specific project management skills that are not generally transportable to other companies and are not considered valuable outside the immediate employment situation (Becker, 1975). Programs listed above that are most likely to contain firm-specific content and are least likely to be recognized outside the firm are: classroom training delivered by in-house trainers, internal project management certification programs, formal mentoring programs, informal mentoring programs, and formal career paths.

General Project Management Professional Development Programs

These programs teach general project management skills that are transportable to other companies and are considered valuable outside the immediate employment situation. Becker (1975) describes general training as increasing the marginal productivity of the workers to the company providing the training, and to other firms as well (p. 19-26). Programs listed above that are most likely to contain generally accepted project management content, and are considered valuable outside the immediate

employment situation are: classroom training delivered by public training vendors; attendance at project management seminars, symposia or conferences, such as those sponsored by PMI; self-study of project management CBTs, books or periodicals; accredited degree programs with project management as the major field of study; external project management certification such as the PMP; and membership in professional associations for project managers.

Amount and Helpfulness of Training

Previous studies found that "training amount and helpfulness were both positively correlated to job satisfaction, organizational and professional commitment, and ability to cope, and negatively related to intention to quit the organization and profession" (Saks, 1996, p. 436). This research will test the findings, but for a group of project managers, as explained later. The construct "Amount of Time in Training" is a count of the number of weeks spent in classroom training programs in the last year. The construct "Helpfulness of Training" is the level of helpfulness of the training to the respondent's current job function.

Intrinsic Motivation

Motivational theorists distinguish between extrinsic and intrinsic rewards. Vecchio (1991) explains that extrinsic rewards are those that are external to the individual and include things such as pay or fringe benefits. In contrast, intrinsic rewards come from within the individual and include feelings such as competence, responsibility, accomplishment and personal growth (p. 206). Intrinsic motivation is an outcome of

these feelings, and can be positively or negatively impacted by extrinsic rewards. This will depend on whether the recipient perceives the rewards to be a reflection of their competence, and this will be a positive impact. Conversely, if the rewards are in some way perceived to be "controlling" the impact will be negative, according to Wiersma (1992, p. 101).

The construct "intrinsic motivation" is integral to many of the content theories of motivation. For example, feelings associated with intrinsic motivation map into Maslow's (1987) "Growth Needs" of an individual, particularly the need for self-actualization. Alderfer's (1972) growth needs describe an individual's need to investigate and master his or her environment, and Herzberg's Two Factor Theory (1959) identifies the following needs as motivator factors or "satisfiers": achievement, recognition, the work itself, responsibility, advancement and personal growth.

Deci and Ryan (1992, 1987) describe intrinsic motivation to be a very powerful force and associate it with enhanced performance, and improved conceptual and creative thinking. However, for intrinsic motivation to develop, the task must offer an opportunity that meets the person's inner needs, and this may simply be the person's desire to know or accomplish something. Most importantly, the person must feel that he or she is performing according to his or her own "free will."

Thierry (1990) surveyed the literature on intrinsic motivation and summarized six different conceptualizations of this construct as follows:

1. It relates to drive,
2. It refers to activities like playing,
3. It refers to an optimal operation level,

4. It includes feelings of personal causation in combination with competence,
5. It involves enjoyment in an action or being fully involved, and
6. It is the "common denominator" between the means and the goal.

For the purposes of this study, the construct "intrinsic motivation" is defined according to Thierry's six conceptualizations listed above as they encompass most of the previous discussion. It is acknowledged that employer-provided professional development programs may have a significantly negative effect on intrinsic motivation if participation in the program is not of the employee's choosing, but has been somehow mandated by the employer. However, a positive effect on intrinsic motivation is anticipated if the employee has chosen to participate. For this study, it is assumed that respondents participated in their professional development programs on a voluntary basis, and the following proposition is advanced:

1. As participation in employer-provided professional development programs increases, the intrinsic motivation of the employee will increase.

Job Satisfaction

The construct "job satisfaction" is defined by Verma (1996) to be the general attitude of a person toward his or her job, and that this attitude arises when the work is in harmony with the needs and values of the individual (p. 55). Job satisfaction is comprised of many facets, and typically most studies tend to map them to Herzberg's (1959) motivator and hygiene factors. Herzberg's motivators or "satisfiers" are identified to be advancement, achievement, the work itself, responsibility, recognition and personal

growth. Herzberg's hygiene factors are: pay, company policies and administration, working conditions, relationships with supervisors, relationships with peers, and supervision level. Most studies reviewed tended to ignore the personal growth factor, but one exception was Turner, Utley and Westbrook's (1998) study to explore the difference in job satisfaction between project managers and functional managers in a matrix organization. Although the structure of the organization in the study is irrelevant to this discussion, it is important to note that the "personal growth and learning" factor was included in the overall job satisfaction index, and was found to be a more important contributing factor to the job satisfaction of project managers than recognition, and more important than respect, authority and recognition for functional managers (p. 11-17). This leads to the following proposition:

2a. As participation in employer-provided professional development programs increases, the overall job satisfaction of the employee will increase.

A relevant study was conducted by Saks (1996) who surveyed a group of 152 entry-level accountants to determine if a relationship existed between the amount and helpfulness of training, and work outcomes. He found that "training amount and helpfulness were both positively correlated to job satisfaction, organizational and professional commitment, and ability to cope, and negatively related to intention to quit the organization and profession" (p. 436). Saks concluded, "the actual time devoted to training may not matter as much as individual's subjective perceptions regarding the amount of training they received" (p. 443). Saks measured the amount of training

received on an eight-item scale corresponding to key content areas of an entry-level accountant's work. He measured training helpfulness with a corresponding scale to determine whether the training met the participants' expectations and desires for the training. The following theoretical propositions replicate a portion of Saks' study to determine if the same relationship is true for a group of project managers:

2b. For employees participating in one or more employer-provided training programs, as the amount of training increases, the overall job satisfaction of the employee will increase.

2c. For employees participating in one or more employer-provided training programs, as the perceived helpfulness of training increases, the overall job satisfaction of the employee will increase.

Organizational Commitment

Organizational commitment is the strength of an individual's identification with, involvement in, and desire to maintain membership in, a particular organization. Meyer and Allen (1997) draw on a wide body of literature to illustrate the many different definitions of what the term "organizational commitment" actually means and for their research, outline a three-component model of commitment. The three components of organizational commitment are: affective, continuance, and normative commitment. Affective commitment is defined to be an employee's emotional attachment to and identification with the organization. Employees with strong affective commitment stay at

the organization because they want to. Continuance commitment emerges when the employee is aware of the costs associated with leaving the organization, and stays with the organization because of this need. Normative commitment is comprised of a sense of moral obligation to stay with the organization, because the employee feels that he should. The authors observe that these components of organizational commitment may all co-exist to varying degrees, and cite an example where an employee may feel both a strong sense of attachment to the organization and a sense of obligation to remain (p. 11-13). Although each of the components of organizational commitment may exist, the authors suggest that they should be measured and tested independently. Meyer and Allen note that some evidence has been found indicating that there is a positive correlation between affective and normative commitment, but found a negative correlation between continuance commitment and the other two factors (p. 122).

Meyer and Allen illustrate that there are many antecedents to affective commitment such as organizational structure, perceptions of fairness in organizational policy, and communication of organizational policy. Of particular relevance to this study are Mathieu and Zajak's (1990) findings that an individual's perception of competence is related to affective commitment. In this case, employees who had a strong sense of confidence in their abilities had a higher level of affective commitment than those who were less confident. Many studies were cited that relate organizational supportiveness to affective commitment, particularly supervisor supportiveness, and whether employees felt that they were making important contributions to the organization. Each of these aspects contributed to the employees' sense of competence and enhanced their affective commitment. Similarly, a relationship was found between affective commitment and the

fulfillment of personal needs, such as the ability to achieve personal goals (p. 42-56). Therefore, the following proposition is advanced:

3a. As participation in employer-provided professional development programs increases, the affective commitment of the employee will increase.

In the development of continuance commitment an important antecedent is that of the perceived investment of time, effort or money, and this increases the costs associated with leaving an organization for the employee. Another antecedent is whether the employee thinks there are other employment alternatives available, or not. A relevant factor in this notion of investment and available alternatives is the acquisition of job-specific skills. If the skills are organization-specific this will increase an employee's sense of continuance commitment due to lack of employment alternatives, whereas if the skills are transferable this is less likely to have an influence on continuance commitment (p. 56-60).

In the case of project management skills, it is thought that if they are mainly learned on-the-job (i.e. participation in in-house classroom training, and/or formal or informal mentoring programs), they are more likely to be organization-specific skills, so the employee will experience an increase in continuance commitment. This leads to the following proposition:

3b. As participation in firm-specific employer-provided professional development programs increases, the continuance commitment of the employee will increase.

In contrast, if the skills are learned outside the organization (i.e. public course offerings, seminars, symposia or conferences, academic programs, and/or project management certification programs) they are more likely to be transferable skills. This may result in a decrease in continuance commitment but the relationship is unknown, so to explore the effect of this type of professional development program on continuance commitment, the following proposition is advanced:

3c. As participation in general employer-provided professional development programs increases, the continuance commitment of the employee will decrease.

Meyer and Allen (1997) observe that normative commitment to the organization develops as a by-product of socialization processes, resulting in a sense of loyalty in the employee. This is particularly strong where the employee feels that the organization has made an investment in him or her, such as by providing tuition payments. The result can be a sense of indebtedness to the organization or a "psychological contract" between the employee and organization that exists until the employee feels that the contract has been fulfilled or violated (p. 60-64). This leads to the following proposition:

3d. As participation in employer-provided professional development programs increases, the normative commitment of the employee will increase.

As Saks (1996) found that "training amount and helpfulness were both positively correlated to job satisfaction, organizational and professional commitment, and ability to cope, and negatively related to intention to quit the organization and profession" (p. 436) the following proposition attempts to replicate the organizational commitment portion of this study. However, Saks does not specify whether his findings were true for the affective, continuance or normative commitment of the participants, so this study assumes that he was measuring affective commitment to the organization, by the nature of the questions asked. So the theoretical proposition now becomes:

3e. For employees participating in one or more employer-provided training programs, as the amount and helpfulness of training increases, the affective commitment of the employee will increase.

Exploratory Research

Although it is thought that gender could be a very important variable, it is not certain whether gender is a moderator of the relationship between participation in professional development programs and the resulting employee attitudes, whether it is an antecedent to the decision to participate in the professional development programs, or whether it could be a main effect on the resulting attitudes of the employees. This

becomes obvious when reviewing the contradictory evidence contained in the literature. To illustrate this point, Mobley et al. (1994) found that although participation in mentoring programs had a positive effect on the job satisfaction of a group of lawyers, there was very little difference in the job satisfaction of males and females who had mentoring relationships. Similarly, Meyer and Allen (1997) reviewed numerous studies and concluded that gender and affective commitment were unrelated. Conversely, Smith, Smitz and Hoy (1998) found that work attitudes in small business settings differ significantly due to gender-related interaction between employers and employees. The gender of the respondent and the mentor of the respondent, if there is a mentoring program reported, will be collected to explore the effect of gender on the relationship between participation in professional development programs and the resulting intrinsic motivation, job satisfaction and organizational commitment of the employee.

A similar problem exists with employee age, tenure with the organization and overall employee experience level, although Meyer and Allen (1997) reviewed numerous studies and found positive relationships between organizational tenure and affective commitment but weak relationships between age and affective commitment. The literature also indicates that employee experience level is highly correlated with tenure. So employee age, experience level and tenure with the organization will be collected to explore the effects of these variables on the relationship between participation in professional development programs and the resulting employee attitudes.

The organization's primary business activity and the area of the organization where the employee works will be gathered to accurately identify the "primary industry" of the project manager. This is important as project managers practice in many industries

and within each industry could work in different application areas, for example an aerospace industry project manager could work in either the engineering, manufacturing, or information technology application area. These data will be gathered for classification purposes and to discover if the professional development programs are more likely to be available for project managers in certain groups than for others. The literature indicates that in some industries, companies take more of a long-term view to the professional development of their project managers than in others. This will explore the effect of "primary industry" of the project manager's organization on the relationship between participation in professional development programs and the resulting employee attitudes. Similarly, it is thought that the size of the organization will determine the availability of project management professional development programs, so will be an antecedent to participation.

Finally, it has been surmised that the project manager's attained education level and professional certification status may be an antecedent to participation in professional development programs. In these and each of the cases above, the intent of the exploratory research is to collect the data and report the findings, and may indicate the need for future research in this area.

III. METHODOLOGY

Introduction

This chapter discusses how each of the constructs defined in the previous chapter will be operationalized and how each hypothesis will be tested. The theoretical model illustrating the relationships to be tested appears in Appendix D.

The quantitative methodology and statistical methods used in the study are then described. The research design section explains the data collection procedures, the sampling design and the data analysis plan employed in this study.

Operationalization of Constructs

Professional Development Programs (Independent Variable)

The Independent Variable "Professional Development Programs" represented participation in one or more of a variety of employer-provided professional development programs within the last year. As respondents were instructed to check a box to indicate participation in each type of program, the Professional Development Programs (PDP) Index measured level of involvement and was comprised of a count of the number of programs attended. See Appendix A for the list of Professional Development Programs included.

Firm-Specific Professional Development Programs (Independent Variable)

The Independent Variable "Firm-Specific Professional Development Programs" represented participation in one or more of a variety of firm-specific employer-provided project management professional development programs within the last year. As respondents were instructed to check a box to indicate participation in each type of program, the Firm-Specific Programs (FSP) Index measured level of involvement and was comprised of a count of the number of programs attended. See Appendix B for the list of programs included in this category.

General Professional Development Programs (Independent Variable)

The Independent Variable "General Professional Development Programs" represented participation in one or more of a variety of general employer-provided project management professional development programs within the last year. As respondents were instructed to check a box to indicate participation in each type of program, the General Programs (GP) Index measured level of involvement and was comprised of a count of the number of programs attended. See Appendix B for the list of programs included in this category.

Amount of Time in Training (Independent Variable)

The Independent Variable "Amount of Time in Training" represented the number of weeks spent in classroom training within the last year. Respondents indicated the number of weeks by checking the box to indicate amount of time in training.

Helpfulness of Training (Independent Variable)

The Independent Variable "Helpfulness of Training" measured how helpful the respondent found the training in his or her job. Responses to this question were measured on a 5-point Likert scale with anchors Extremely Unhelpful (1) to Extremely Helpful (5), to indicate level of helpfulness of the training.

Intrinsic Motivation (Dependent Variable)

The Dependent Variable "Intrinsic Motivation" represented the respondent's overall sense of perceived competence in his or her job. The Intrinsic Motivation (IM) Index was comprised of a selection of questions based on the scale categories contained in the Intrinsic Motivation Inventory (IMI) devised by McAuley et al. (1989, 1991), and used in Markland and Hardy's study (1997). The scale categories are: Effort/Importance, Interest/Enjoyment, Perceived Competence and Self-Determination. The questions were designed by this researcher to inquire into the respondent's feelings on each topic of inquiry, with 2 questions in each scale. For example, to measure level of enjoyment the respondent was asked to agree or disagree with the statement "I enjoy my work." Responses to each question were measured on a 5-point Likert scale with anchors Strongly Disagree (1) to Strongly Agree (5), to indicate level of agreement with each statement. The IM Index was the sum of the scores for each individual question. See Appendix B for the list of questions included in each sub-scale.

Job Satisfaction (Dependent Variable)

The Dependent Variable "Job Satisfaction" represented the respondent's overall level of satisfaction with his or her job. The Job Satisfaction (JS) Index was comprised of a variety of questions adapted from the 20-item (short form) of the Minnesota Satisfaction Questionnaire (MSQ, Weiss et al., 1967). Questions from the MSQ were used verbatim with the following exceptions to use more gender-neutral language or to make it more obvious that the workplace is the area of inquiry:

1. Question 9d: The chance to become "somebody" in the community, changed to: the chance to become "somebody" in the workplace.
2. Question 9e: The way my boss handles his men, changed to: the way my boss handles his/her people.

Responses to each question were measured on a 5-point Likert scale ranging from Very Dissatisfied (1) to Very Satisfied (5), indicating level of satisfaction with each aspect of their job. The MSQ short form is comprised of 3 scales: Intrinsic Satisfaction (IS) containing 12 questions, Extrinsic Satisfaction (ES) containing 6 questions, and General Satisfaction (GS) containing all 20 questions. Within each scale, the following sub-scales are included with one question per sub-scale in the short form MSQ: Ability Utilization, Achievement, Activity, Advancement, Authority, Company Policies and Practices, Compensation, Co-workers, Creativity, Independence, Moral Values, Recognition, Responsibility, Security, Social Service, Social Status, Supervision – Human Relations, Supervision – Technical, Variety, Working Conditions. See Appendix B for the list of questions included in each scale and sub-scale.

Organizational Commitment (Dependent Variables)

There were 3 Dependent Variables used to measure the respondent's level of commitment to his or her organization. They were: Affective Commitment (AC), Continuance Commitment (CC), and Normative Commitment (NC) as defined by Meyer and Allen (1997). The scales and questions used for each Dependent Variable were the Affective, Continuance and Normative Commitment Scales contained in Meyer and Allen's (1997) Organizational Commitment Questionnaire (OCQ). Each scale was comprised of 6 questions that were taken verbatim from the OCQ, and 4 questions were reverse-scored. Meyer and Allen measured the responses on a 7-point Likert scale with the anchors Strongly Disagree (1) and Strongly Agree (5), however this researcher decided to measure the responses on a 5-point Likert scale with the anchors (1) Strongly Disagree to (5) Strongly Agree, to indicate level of agreement with each statement. This change was made for consistency with the MSQ as each of the questionnaires would appear in the same survey instrument and were administered at the same sitting.

There was no overall Organizational Commitment Index as Meyer and Allen found evidence that Continuance Commitment is negatively correlated with Affective and Normative Commitment and there was concern that summing the scores of each scale would confound the results. See Appendix B for the list of questions included in each scale.

Hypotheses

The general proposition of this study was to determine the relationship between participation in employer-provided professional development programs as measured by the PDP Index (Independent Variable), FSP Index (Independent Variable) or GP Index (Independent Variable) and each of the following Dependent Variables:

1. Intrinsic Motivation as measured by the IM Index,
2. Job Satisfaction as measured by the IS, ES and GS Scales, and
3. Organizational Commitment as measured by the AC, CC and NC Scales.

Each hypothesis was tested by determining the correlation between the Independent Variable and the Dependent Variable. If the correlation was statistically significant in the specified direction, then the hypothesis was supported.

Research Design

Data Collection Procedures

Primary data was collected for this study by means of a paper and pencil survey containing the questions shown in Appendix A. This was a change in data collection procedure from the original research design due to technical difficulties encountered when constructing the survey web site. However, the questions were identical in each version of the questionnaire, regardless of the method of delivery. Each individual

attitude measurement scale is shown in Appendix B with a cross-reference to the question number in the questionnaire.

Participants in the survey received by US Postal Service a cover letter explaining the purpose of the research, an assurance of confidentiality, the deadline for responses to be received, and a copy of the questionnaire with the return address and postage. The deadline for return of the completed questionnaire was approximately 3 weeks from the time of mailing. Following the deadline a reminder was sent to the mailing list to encourage recipients to respond. Approximately 2 weeks was allowed for late responses to be received before the data collection period ended.

Sample Design

The sampling frame used was a database of members of a project management professional organization based in the St. Louis area. Permission was obtained from the Board of Directors of the organization to contact the membership and invite them to participate in the study. The membership database used was comprised of 473 members as of July 31, 2001. Address labels were printed from this database and were visually inspected for complete address information. Seven labels were not included in the mailing due to incomplete addresses. Questionnaires were mailed to the remaining 466 members to comprise a census of this group. This research design was chosen because a cross-industry sample of professional project managers would be required to determine if there is any variation in responses across industry classifications.

A high response rate was anticipated even for a paper and pencil survey because project managers who join a professional organization were considered to be

demonstrating their interest in furthering the recognition of the project management profession, and in pursuing their professional development on their own time. The reminder was expected to have the effect of improving the response rate.

Data Analysis Plan

Data analysis commenced when the 3-week time period allocated for data collection had elapsed. All data was coded and entered into pre-formatted Microsoft Excel spreadsheets. Please see Appendix C for the coding scheme for responses to the questionnaire. Statistical tests were performed using statistical analysis tools and included: frequency and percentage distributions to describe the population surveyed, means and standard deviations of the population, significance tests of the hypotheses, and the correlation between the Independent Variable and each of the Dependent Variables.

With respect to the exploratory research on gender, length of project management experience, tenure with current employer, the organization's industry classification, and the organization's size, a variety of statistical techniques were utilized to analyze them. Statistical tests included: t-tests, Analysis of Variance (ANOVA) and regression analysis. Charts, graphs and tables were then produced for presentation and interpretation of the results.

IV. FINDINGS

Introduction

This chapter reports the results of the study. The first section discusses the reliability of the attitude measurement scales followed by the response rate for the survey and a descriptive analysis of the data. Each hypothesis postulated in Chapter 2 was then tested and the results are reported. The results of an analysis of the exploratory data collected in the survey are presented in the final section of this chapter.

Reliability of Attitude Measurement Scales

Using SPSS, the reliability of each of the attitude measurement scales used in the questionnaire was confirmed. In each case, the internal consistency of the attitude measurement scales was high, with alphas of .8835 for Overall Job Satisfaction, .8814 for Affective Commitment, .7245 for Continuance Commitment, .7792 for Normative Commitment and .7599 for Intrinsic Motivation.

Response Rate

The sampling frame for this study was a database of members of a project management professional organization based in the St. Louis area. Mailing labels were produced from this database and questionnaires were mailed to the 466 members with

complete address information in the database. Only three questionnaires were returned by the Post Office as undeliverable. As each response was received during the data collection period, it was reviewed for completeness. Three responses were discarded as they were returned incomplete. There were 118 usable responses returned, for an overall response rate of 26%. Although the response rate was lower than hoped, it was considered a representative sample of the group of project managers surveyed. Table 1 shown below summarizes the response to this survey:

Table 1: Survey Response Rate

Number of questionnaires mailed	466
Number of questionnaires returned by US Post Office as undeliverable	3
Number of questionnaires returned incomplete	3
Number of usable responses	118
Response Rate	**26%**

Non-Response Bias

As the database used for the sampling frame of the survey was a mailing list for the membership of the association, it did not contain information on the gender, age, education level or experience level of the individual. Neither did it contain information about the member's employer other than an address. For this reason, it was not possible to compare the data collected by this survey against the membership database to determine if non-response bias existed. To determine whether the sample was representative of the population of project managers or not, the results were profiled and

compared with the demographic data for respondents in two other recent studies of groups of project managers. The details of these profiles are provided in Appendix E.

The characteristics of the respondents, their levels of project management exposure and the organizations represented were compared with the demographic data that was presented in a similar manner in Thomas, Delisle and Jugdev's 2001 survey of 1,867 project managers or executives with project responsibility (pp. 6-7). In almost all of the categories profiled, the characteristics of the respondents and organizations represented were strikingly similar and some were identical in both studies. This is important because Thomas, Delisle and Jugdev's sample was drawn from a much wider geographic area than the present study (55% of respondents were from the U.S.A., 35% of respondents were from Canada and the remaining 10% were from other areas of the world). The 2001 study utilized a web-based questionnaire with links from a variety of project management-related sites including PMI and other organizations.

A similar comparison was made with the sample of respondents in PMI's Project Management Professional Role Delineation Study (2000, p. 16-18). For the PMI study there were 826 responses, and most were from respondents in the U.S.A. Although not all demographic categories were present in both studies, the groups were similar in age, education level, project management experience, job title and primary business activity of employers. The similarity of the samples in each study reduces the concern about possible non-response error in the present study.

These comparisons indicate that the sample of project managers surveyed in the present study is representative of the population of project managers. It therefore seems reasonable to make inferences from the findings of the present study to the population of

North American project managers. It is not considered valid to make inferences to the worldwide population of project managers as so few respondents in Thomas, Delisle and Jugdev's (2001) study and the PMI (2000) study were from countries outside North America, and cultural differences are expected to have a moderating effect on attitude.

Descriptive Analysis of Data

At the end of the data collection period, responses to the survey were coded and entered into a spreadsheet in Microsoft Excel. Descriptive statistics were then generated for the sample for each of the demographic categories listed below:

1. Overall project management experience,
2. Number of years employment with present employer (tenure),
3. Gender of respondents,
4. Ages of respondents,
5. Highest education level of respondents,
6. Professional certification status
7. Primary business activity of employers (Industry Classification),
8. Functional area of the organization,
9. Organization size,
10. Job titles of respondents,
11. Participation in professional development programs,
12. Number of weeks project management training.

Frequency and percentage distributions for the sample were computed for male respondents, female respondents and all respondents. Where appropriate, the mean was calculated for male respondents, female respondents and all respondents for further interpretation of the results. The data were presented in this manner to highlight any differences in the distributions of male and female respondents. Of the 118 responses, 71 (60%) were from male respondents and 47 (40%) were from female respondents.

Overall Project Management Experience

The distribution of the respondents' overall project management experience appears in Table 2 below. The majority of the respondents (78%) reported between 6 and 25 years experience in project management, and only 5% had over 25 years experience. This is illustrative of the growth of the project management profession in the last 25 years. Prior to this time, the practice of project management was prevalent in engineering, aerospace and construction. This explains why the number of female respondents drops considerably in the categories reporting over 15 years project management experience, because females have traditionally been represented less in these industries. However, the boom in Information Technology projects and the formal practice of project management in other industries since the early 1990's may have provided more opportunities for female employees to grow into the project manager role.

Similar skewing is observed when calculating the means for male respondents, female respondents and all respondents. The mean for all female respondents (3.19) falls one experience category lower than for male respondents (4.11), further illustrating that

the females in the sample had about 5 years less project management experience than the males.

Table 2: Overall Project Management Experience

		Male Respondents		Female Respondents		All Respondents	
Code	**Total Years Experience**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	Less than 1 year	1	1.41	1	2.13	2	1.69
2	1 - 5 years	9	12.68	14	29.79	23	19.49
3	6 - 10 years	17	23.94	17	36.17	34	28.81
4	11 - 15 years	17	23.94	9	19.15	26	22.03
5	16 - 20 years	13	18.31	3	6.38	16	13.56
6	21 – 25 years	9	12.68	2	4.26	11	9.32
7	More than 25 years	5	7.04	1	2.13	6	5.08
Means		4.11		3.19		3.74	

Number of Years Employment with Present Employer (Tenure)

The respondents' number of years employment (or tenure) with their present employers is shown in Table 3. Over 76% of all respondents had been with their present employer for 10 years or less, and 50% of all respondents reported 1 to 5 years tenure with their present employer. Mean tenure for female respondents was only slightly less than for male respondents.

Table 3: Number of Years Employment with Present Employer (Tenure)

		Male Respondents		Female Respondents		All Respondents	
Code	**Tenure of Employment**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	Less than 1 year	7	9.86	7	14.89	14	11.86
2	1 - 5 years	36	50.7	23	48.94	59	50.00
3	6 - 10 years	8	11.27	9	19.15	17	14.41
4	11 - 15 years	8	11.27	1	2.13	9	7.63
5	16 - 20 years	4	5.63	3	6.38	7	5.93
6	21 – 25 years	2	2.82	3	6.38	5	4.24
7	More than 25 years	6	8.45	1	2.13	7	5.93
Means		2.94		2.64		2.82	

Ages of Respondents

The age categories of the respondents are shown in Table 4 below. Approximately 80% of all respondents reported ages between 36 and 55, with 50% of all male respondents in the 46-55 year age category and 48% of all female respondents in the 36-45 year age category. So the majority of females in this sample were up to 10 years younger than their male counterparts.

Table 4: Ages of Respondents

		Male Respondents		Female Respondents		All Respondents	
Code	**Age**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	25 or younger	1	1.41	0	0.00	1	0.85
2	26 - 35	6	8.45	10	21.28	16	13.56
3	36 - 45	22	30.99	23	48.94	45	38.14
4	46 – 55	36	50.70	13	27.66	49	41.53
5	56 – 65	6	8.45	1	2.13	7	5.93
6	66 and over	0	0.00	0	0.00	0	0.00
Means		3.56		3.11		3.38	

Highest Education Level of Respondents

The highest education level attained by the respondents is shown in Table 5. Almost 90% of the respondents reported a Bachelor's degree or above. Overall, male respondents reported a higher education level than females with 53% of all males holding a Master's degree in contrast to 34% of all females. Most female respondents (49%) reported either a Bachelor's degree or some graduate-level coursework.

Table 5: Highest Education Level of Respondents

		Male Respondents		Female Respondents		All Respondents	
Code	**Highest Education Level**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	High School graduate or equivalent	1	1.41	3	3.68	4	3.39
2	Some undergraduate-level coursework	3	4.23	5	10.64	8	6.78
3	Bachelor's Degree	14	19.72	17	36.17	31	26.27
4	Some graduate-level coursework	14	19.72	6	12.77	20	16.95
5	Master's Degree	38	53.52	16	34.04	54	45.76
6	Doctorate Degree	1	1.41	0	0.00	1	0.85
Means		4.23		3.57		3.97	

Professional Certification Status

Whether professional certification (i.e. PMP) was held by the respondents or not is shown in Table 6 below. Overall, 38% of the respondents reported that professional certification had been attained. The professional certification status was the same for males and females with approximately 38% of each group holding professional certification.

Table 6: Professional Certification Status

	Male Respondents		Female Respondents		All Respondents	
Professional Certification	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Yes	27	38	18	38	45	38
No	44	62	29	62	73	62

Primary Business Activity of Employers (Industry Classification)

The primary business activities, or industry classifications, of employers reported by the respondents are presented in Table 7 below. Unfortunately, 25% of all respondents indicated their employer's primary business activity to be "Other." Clearly, the categories provided on the questionnaire were not extensive enough. However, further inspection of the data revealed that these employers primarily operate in the Auto Rental industry, the Airline industry, the Health Care industry, the Insurance industry, and Agriculture.

The majority of the respondents (43%) reported their employers' primary business activity to be either Information Management and Movement (Telecommunications) or Information Systems. This was consistent for male and female respondents. Surprisingly, relatively few respondents reported their employer's primary business activity to be Aerospace and/or Defense (3.39%), Design and/or Construction (0%), Government (3.39%), or Manufacturing (7.63%). This was unexpected as there are a number of large, well-known companies in the area for each of these industry groupings. Also, project management has been traditionally practiced in these industries for many years so higher representation was expected.

Table 7: Primary Business Activity of Employers

	Male Respondents		Female Respondents		All Respondents	
Primary Business Activity	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Aerospace and/or Defense	4	5.63	0	0	4	3.39
Automotive	8	11.27	2	4.26	10	8.47
Design and/or Construction	0	0	0	0	0	0
Education and/or Training	0	0	0	0	0	0
Environmental Management	0	0	0	0	0	0
Financial Services	4	5.63	6	12.77	10	8.47
Government	3	4.23	1	2.13	4	3.39
Information Management and Movement (Telecommunications)	13	18.31	11	23.4	24	20.34
Information Systems	13	18.31	6	12.77	19	16.1
Manufacturing	6	8.45	3	6.38	9	7.63
Oil, Gas and Petrochemical	1	1.41	0	0	1	0.85
Pharmaceutical	0	0	0	0	0	0
Service and Outsourcing	4	5.63	2	4.26	6	5.08
Utilities	1	1.41	0	0	1	0.85
Other	14	19.72	16	34.04	30	25.42

Functional Area of the Organization

The functional area of the organization where the respondents work is shown in Table 8 below. This is important as project managers can work in different functional areas within an organization and have the same job title (i.e. project manager), but a different skill set or background may be required and there may be substantial differences in the type of projects, or project size in terms of dollars or time. To illustrate this point, a project manager in the Engineering area of an Aerospace company will most likely be an engineer, and may oversee a single multi-million dollar project that spans a number of years. In contrast, an Information Systems project manager will most likely have an Information Technology background and may oversee multiple concurrent short-term

projects of a few weeks or months duration. This is the "application area" of project management, but the tools and techniques of project management will be similar.

Regardless of the industry classification specified by the respondents, 51% of all respondents reported their area of the organization to be Information Systems. The next largest group (22%) identified that they worked in a Project Office. Usually, the Project Office is a functional area set up to handle project work for an organization. Respondents specifying "Other" as their functional area within the organization (11.86%) were consultants, or worked in the training department of the organization or in an operational area.

Table 8: Functional Area of the Organization

	Male Respondents		Female Respondents		All Respondents	
Functional Area	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Research and Development	1	1.41	0	0	1	0.85
Manufacturing	2	2.82	1	2.13	3	2.54
Information Systems	30	42.25	31	65.96	61	51.69
Marketing/Sales	4	5.63	1	2.13	5	4.24
Financial/Legal	0	0	0	0	0	0
Engineering	6	8.45	2	4.26	8	6.78
Contract Management/Procurement	0	0	0	0	0	0
Project Office	18	25.35	8	17.02	26	22.03
Other	10	14.08	4	8.51	14	11.86

Organization Size

The sizes of the organizations where the respondents were employed are shown in Table 9 below. Most respondents worked for large organizations (44%) with over 30,000 employees. This was expected as several very large organizations in the area sponsor their project managers' participation in professional organizations as part of the professional development program. However, it was a surprise that approximately 18% of all respondents worked for small organizations with 500 or less employees. It was thought that these respondents would probably not be sponsored by their employers, but more likely would pay their own membership fees to belong to professional organizations.

Table 9: Organization Size

	Male Respondents		Female Respondents		All Respondents	
Organization Size	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
Less than 100 employees	9	12.68	3	6.38	12	10.17
101 to 500 employees	3	4.23	6	12.77	9	7.63
501 to 1,000 employees	4	5.63	2	4.26	6	5.08
1,001 to 5,000 employees	12	16.9	8	17.02	20	16.95
5,001 to 10,000 employees	5	7.04	3	6.38	8	6.78
10.001 to 20,000 employees	3	4.23	3	6.38	6	5.08
20,001 to 30,000 employees	3	4.23	2	4.26	5	4.24
30,001 or more employees	32	45.07	20	42.55	52	44.07

Job Titles of Respondents

The job titles of the respondents are shown in Table 10 below. Most respondents (43%) held the job title of Project Manager. Female respondents with this job title (49%) were proportionately higher than male respondents (39%). However, there were more male respondents than females reporting the more senior job titles of Program Manager (15%) or Manager of Project Management (20%). This was to be expected in view of the male respondents' experience levels tending to about 5 years more than the female respondents in this group. The position of Program Manager requires more experience as a "program" is usually comprised of multiple projects, each with its own Project Manager, and sometimes an operational area of the organization. Manager of Project Management is most likely a functional manager over a department or a Project Office with Project Managers as direct reports.

Approximately 7% of the respondents reported "Other" as their job title. Most of these were Department Managers or Directors, I.S. Technical Leads or Management Consultants with project responsibility. There were no respondents reporting that they were a Project Management Trainee, a Project Management Trainer, or a Project Engineer. Only one respondent was in Executive Management, and 8% of respondents reported that they held the position of either Project Leader or Project Management Consultant.

Table 10: Job Titles of Respondents

		Male Respondents		Female Respondents		All Respondents	
Code	**Job Titles**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	Project Management Trainee	0	0	0	0	0	0
2	Project Leader	5	7.04	5	10.64	10	8.47
3	Project Manager	28	39.44	23	48.94	51	43.22
4	Program Manager	11	15.49	5	10.64	16	13.56
5	Manager of Project Management	14	19.72	8	17.02	22	18.64
6	Project Management Trainer	0	0	0	0	0	0
7	Project Engineer	0	0	0	0	0	0
8	Project Management Consultant	7	9.86	3	6.38	10	8.47
9	Executive Management	0	0	1	2.13	1	0.85
10	Other	6	8.45	2	4.26	8	6.78
Means		4.56		4.08		4.37	

Participation in Professional Development Programs

The types of professional development programs reported as being provided by employers, and the respondents' participation level in each type of program is shown in Table 11 below. As expected due to the sampling frame for the survey, the professional development program provided most often to this group of respondents (72%) was "Membership in Professional Associations for Project Managers" and the participation rate was over 88%. Project Management Classroom Training (in-house) was provided by 60% of the employers and the participation rate was over 66%, followed by Project Management Books (58%) with an 81% participation rate, and Project Management Certification Program Sponsorship – external (i.e. PMP) at 52% with a 50% participation rate. Surprisingly, 50% of the respondents stated that their employers provided Project Management Classroom Training – public courses and Project Management Seminars, Symposia or Conferences (47%). This was higher than expected as public courses and conference registration fees can be very expensive. Relatively few employers provided

formal mentoring programs (18%), Formal Career Paths for Project Managers (24%), or internal certification programs (19%) and in each case the participation rate was less than 50%. Respondents reporting formal mentoring programs also identified that 62% of the mentors were male and 38% of the mentors were female. This finding will be examined later in this chapter. The 4% reporting "Other" programs were participating in either technical training or academic programs other than project management (i.e. business) that were employer-provided.

Table 11: Participation in Professional Development Programs by Program Type

	Programs Provided By Employers		Respondents Participating in Program		Participation Rate
Professional Development Program	**Freq.**	**%**	**Freq.**	**%**	**%.**
Project Management Classroom Training (in-house)	71	60.17	47	39.83	66.2
Project Management Classroom Training (public courses)	60	50.85	36	30.51	60
Project Management Seminars, Symposia or Conferences	56	47.46	35	29.66	62.5
Project Management CBTs	48	40.68	20	16.95	41.67
Project Management Books	69	58.47	56	47.46	81.16
Project Management Periodicals	61	51.69	61	51.69	100
Project Management Degree Program Sponsorship	36	30.51	4	3.39	11.11
Project Management Certification Program Sponsorship – internal	23	19.49	11	9.32	47.83
Project Management Certification Program Sponsorship – external (i.e. PMP)	62	52.54	31	26.27	50
Formal Mentoring Program	22	18.64	10	8.47	45.45
Informal Mentoring Program	53	44.92	30	25.42	56.6
Membership in Professional Associations for Project Managers	86	72.88	76	64.41	88.37
Formal Career Path for Project Management	29	24.58	12	10.17	41.38
Other	5	4.24	5	4.24	100

In the questionnaire, 14 professional development programs were listed and respondents were asked to check the boxes to indicate which programs they participated

in during the last year. Table 12 shown below lists the number of professional developments participated in during the last year for male respondents, female respondents and all respondents.

Out of the 14 programs listed, the maximum number of programs checked was 10 and this was by only 2 of the respondents. Eleven respondents indicated that they did not participate in any employer-provided professional development programs. In some cases, it was indicated that professional development programs were actually provided, so this suggested that the questionnaire had been completed correctly. Inspection of the data for these respondents indicated that almost all of the respondents had Master's degrees and higher levels of experience than most. Many, but not all, worked for companies with 100 employees or less. As these respondents were also members of the PMI Chapter used as the sampling frame, we can infer that they were also paying their own membership dues to belong to the organization.

Overall, it was most likely that participants would participate in 3 or 4 professional development programs in a year, with the mean participation level of males (4.03) higher than females (3.15). Later in this chapter this finding will be examined further.

Table 12: Number of Professional Development Programs Attended

	Male Respondents		Female Respondents		All Respondents	
Number of Programs	Freq.	%	Freq.	%	Freq.	%
0	6	8.45	5	10.64	11	9.32
1	7	9.86	8	17.02	15	12.71
2	9	12.68	8	17.02	17	14.41
3	6	8.45	6	12.76	12	10.17
4	12	19.9	6	12.76	18	15.25
5	10	14.08	8	17.02	18	15.25
6	8	11.27	4	8.51	12	10.17
7	9	12.68	0	0	9	7.63
8	3	4.22	1	2.13	4	3.39
9	0	0	0	0	0	0
10	1	1.41	1	2.13	2	1.69
Mean/sd	4.03	2.41	3.15	2.25	3.68	2.38

Number of Weeks PM Training

The number of weeks project management training reported by 62 of the 83 respondents who also indicated that they had participated in a training program in the last year (in-house or public) is shown in Table 13 below. Over 46% of all respondents received less than 1 week of training, 29% received 1 week of training, 21% received 2 weeks of training and only one respondent in each category received either 3 weeks or 6 or more weeks of training.

The mean number of weeks training for all respondents is 1.75, however examination of the means for male and female respondents indicates that females (mean 1.9) received more training than males (mean 1.5). This could be because the female respondents tended to be less experienced than the male respondents.

Table 13: Number of Weeks PM Training

		Male Respondents		Female Respondents		All Respondents	
Code	**Number of Weeks Training**	**Freq.**	**%**	**Freq.**	**%**	**Freq.**	**%**
1	Less than 1 week	12	63.38	17	42.5	29	46.77
2	1 week	7	31.82	11	27.5	18	29.03
3	2 weeks	2	9.09	11	27.5	13	20.97
4	3 weeks	1	4.55	0	0	1	1.61
5	4 weeks	0	0	0	0	0	0
6	5 weeks	0	0	0	0	0	0
7	6 or more weeks	0	0	1	2.5	1	1.61
Mean/ sd		1.5	0.99	1.9	1.24	1.75	1.18

Comparison with Normative Data

Normative data were not readily available for the Intrinsic Motivation or Organizational Commitment attitude measurement scales used in the questionnaire. However, it was available for the Job Satisfaction attitude measurement scale and a comparison with the results for the group of project managers is provided in the following section.

Job Satisfaction

Job satisfaction was measured using the short form of the Minnesota Satisfaction Questionnaire (Weiss et al, 1967). In this version of the questionnaire, each of the 20 individual sub-scales was measured with one question. The Intrinsic Satisfaction score was measured using the sum of the scores of 12 of the questions, and the Extrinsic Satisfaction score was comprised of the sum of the scores of 6 of the questions. The

General Satisfaction score was comprised of the sum of the scores of all 20 questions in the MSQ (p. 4).

Normative Data were available for the short form MSQ. The Normative Data for the group identified as "Professional, Technical, Managerial and Engineers" was chosen for comparison with the group of project managers in this survey (p. 113). The Normative Data provides the mean and standard deviation for the Intrinsic, Extrinsic and General Satisfaction scores of a group of 387 engineers. The same means and standard deviations were computed for the group of 118 project managers, and the comparison is shown in Table 14 below.

Table 14: Comparison with Normative Data for Job Satisfaction

	Intrinsic Scale		Extrinsic Scale		General Satisfaction Scale	
Group	Mean	SD	Mean	SD	Mean	SD
Engineers (Normative Data)	48.53	7.54	21.32	4.38	77.88	11.92
Project Managers	46.67	7.03	20.83	3.51	75.28	10.06

For each scale the means were less for the project managers than for the engineers in the Normative Data, indicating that the project managers were slightly less satisfied overall. The Manual for the Minnesota Satisfaction Questionnaire also provides percentiles for each scale and an interpretation of the meanings of the percentile ranges (p. 5). Scores above the 75th percentile indicate a high level of satisfaction, scores in the 26th to 75th percentile range indicate an average level of satisfaction and scores in the 25th percentile or less indicate a low level of satisfaction. The project managers' scores mapped to the 30th percentile on the Intrinsic scale, the 35th percentile on the Extrinsic

scale and the 35th percentile on the General scale. This indicates that on each scale the group of project managers was on the low end of average satisfaction. However, inspection of the scores for each respondent indicates that some are more highly satisfied than others. In each case the standard deviation of the project managers' scores is less than the standard deviation of the engineers' scores, suggesting that the project managers were a more homogeneous group. Unfortunately, the Normative Data did not provide information on the gender of the group of engineers, so a comparison by gender of respondent cannot be reliably performed.

The means and standard deviations of the scores for each job satisfaction sub-scale are shown in Table 15 for all respondents. Overall, the group of project managers were most satisfied with being able to do things that did not go against their conscience, the working conditions, the chance to do different things from time to time, the chance to do things for other people, and the chance to try their own methods of doing the job. All of these elements appear consistent with the duties of a project manager. However, the group of project managers seemed to be least satisfied with the chances for advancement on their jobs and the way company policies are put into practice. Neither of these results were a surprise as the career paths for project managers are ill defined in many companies, and often projects are initiated or canceled without much explanation to the project managers, or are triggered in response to a crisis (Thomas, Delisle and Judgev; 2001; p. 9).

Table 15: Mean and Standard Deviations for Each Sub-Scale – All Respondents

[illegible]	[illegible] Question	[illegible] Mean	[illegible] St. Dev.
Intrinsic: Advancement	12n. The chances for advancement on this job	3.06	1.04
Intrinsic: Activity	12a. Being able to keep busy all the time	3.87	1.02
Intrinsic: Working conditions	12q. The working conditions	4.04	0.75
Intrinsic: Social status	12d. The chance to be "somebody" in the workplace	3.75	0.95
Intrinsic: Social service	12i. The chance to do things for other people	3.97	0.75
Intrinsic: Moral values	12g. Being able to do things that don't go against my conscience	4.21	0.74
Intrinsic: Independence	12b. The chance to work alone on the job	3.87	0.84
Intrinsic: Creativity	12p. The chance to try my own methods of doing the job	3.97	0.90
Intrinsic: Co-workers	12r. The way my co-workers get along with each other	3.77	0.82
Intrinsic: Compensation	12m. My pay and the amount of work I do	3.76	0.86
Intrinsic: Achievement	12t. The feeling of accomplishment I get from my job	3.89	0.91
Intrinsic: Ability Utilization	12k. The chance to do something that makes use of my abilities	3.91	1.01
General Only: Supervision – Technical	12f. The competence of my supervisor in making decisions	3.73	1.02
General Only: Supervision – HR	12e. The way my boss handles his/her people	3.60	1.05
Extrinsic: Variety	12c. The chance to do different things from time to time	4.04	0.90
Extrinsic: Security	The way my job provides for steady employment	3.87	1.02
Extrinsic: Responsibility	The freedom to use my own judgment	3.93	0.80
Extrinsic: Recognition	The praise I get for doing a good job	3.60	0.96
Extrinsic: Company policies and practices	The way company policies are put into practice	3.08	0.85
Extrinsic: Authority	The chance to tell other people what to do	3.37	0.74

The means and standard deviations of the scores for each job satisfaction sub-scale are shown in Table 16 for all male respondents and all female respondents. Although no statistically significant difference was found between the overall job satisfaction scores of the male respondents and female respondents in the sample, it is interesting to look at how the male and female responses vary for each sub-scale. For

example, the female respondents are more satisfied than the male respondents in the areas of advancement, working conditions, compensation, company policies and practices and authority. However, they seem to be very unhappy about their ability utilization! In contrast, the male respondents are more satisfied than the female respondents in the areas of social service, moral values, creativity, achievement, ability utilization, variety, security and recognition.

Table 16: Mean and Standard Deviations for Each Sub-Scale – Male and Female Respondents

Intrinsic: Advancement	3.79	0.89	4.0	1.18
Intrinsic: Activity	3.87	0.75	3.87	0.97
Intrinsic: Working conditions	3.98	0.83	4.13	0.99
Intrinsic: Social status	3.71	0.83	3.81	1.11
Intrinsic: Social service	3.62	1.00	3.57	1.14
Intrinsic: Moral values	3.76	0.92	3.68	1.16
Intrinsic: Independence	4.32	0.73	4.04	0.72
Intrinsic: Creativity	3.93	1.06	3.79	0.95
Intrinsic: Co-workers	3.97	0.72	3.96	0.81
Intrinsic: Compensation	3.22	0.56	3.59	0.90
Intrinsic: Achievement	3.91	0.87	3.91	1.19
Intrinsic: Ability Utilization	3.14	0.81	2.97	0.90
General Only: Supervision – Technical	3.77	0.85	3.74	0.89
General Only: Supervision – HR	3.04	1.00	3.08	1.10
Extrinsic: Variety	3.98	0.75	3.85	0.88
Extrinsic: Security	4.07	0.80	3.81	1.03
Extrinsic: Responsibility	4.05	0.70	4.02	0.82
Extrinsic: Recognition	3.82	0.74	3.70	0.93
Extrinsic: Company policies and practices	3.51	0.94	3.74	0.99
Extrinsic: Authority	3.86	0.68	3.93	1.19

Hypothesis Testing

Relationship Between Participation in Employer-Provided Professional Development Programs and Intrinsic Motivation

The following research proposition advanced earlier in this paper investigated the relationship between participation in employer-provided professional development programs and the intrinsic motivation of the employee:

1. As participation in employer-provided professional development programs increases, the intrinsic motivation of the employee will increase.

To determine this relationship the Independent Variable, PDP Index, was calculated by finding the total number of employer-provided professional development programs participated in by each respondent. The Dependent Variable was then found for each respondent by adding the score values of the responses for each of the 8 questions comprising the IM Index. The Correlation (r) of the PDP Index and IM Index was then computed using MS Excel's Regression Analysis function. The Correlation of the two variables was found to be r=0.1489 with a Coefficient of Determination, $r^2 = 0.0222$. To determine the significance of this result, the following hypothesis was tested at a 95% confidence level using a t-test (one-tailed, n=118):

Null Hypothesis H_o: $r = 0$

Research Hypothesis H_1: $r > 0$

As the absolute value of t (1.62) was less than the critical value of t (1.66), we do not reject the null hypothesis and conclude that there is not enough statistical support for the research hypothesis stating that as participation in employer-provided professional development programs increases, the intrinsic motivation of the employee will increase.

Relationship Between Participation in Employer-Provided Professional Development Programs and Job Satisfaction

The following research proposition is similar to the previous one, but this time the effect of participation in employer-provided professional development programs on employee job satisfaction is examined:

2a. As participation in employer-provided professional development programs increases, the overall job satisfaction of the employee will increase.

The Independent Variable, PDP Index, was calculated as before by finding the total number of employer-provided professional development programs participated in by each respondent. The Dependent Variable was then found for each respondent by adding the score values of the responses for each of the 20 questions comprising the JS Index (Overall Job Satisfaction). The Correlation (r) of the PDP Index and JS Index was then computed and was found to be r=0.2780 with a Coefficient of Determination, $r^2 = 0.0773$. To determine the significance of this result, the following hypothesis was tested at a 95% confidence level using a t-test (one-tailed, n=118):

Null Hypothesis H_o: $r = 0$

Research Hypothesis H_1: $r > 0$

As the absolute value of t (3.12) exceeded the critical value of t (1.66), we reject the null hypothesis and conclude that there is enough statistical support for the research hypothesis stating that as participation in employer-provided professional development programs increases, the overall job satisfaction of the employee will increase.

Relationship Between Participation in Employer-Provided Training Programs and Job Satisfaction

The following two research propositions narrowed the scope of the professional development programs under consideration to in-house or public classroom training only. They replicated Saks' (1996) study by investigating the effect of the amount and perceived helpfulness of training, on job satisfaction. The first research proposition investigates the effect of the amount of training on overall job satisfaction:

2b. For employees participating in one or more employer-provided training programs, as the amount of training increases, the overall job satisfaction of the employee will increase.

For research proposition 2b, the Independent Variable, the number of weeks training (in-house or public classroom training) for each of the 62 respondents who indicated that they participated in training programs during the past year, was calculated. The Dependent Variable was then found for each of these respondents by adding the

score values of the responses for each of the 20 questions comprising the JS Index (Overall Job Satisfaction). The Correlation (r) of the number of weeks training and JS Index was then computed and was found to be r=0.0387 with a Coefficient of Determination, $r^2 = 0.0015$. To determine the significance of this result, the following hypothesis was tested at a 95% confidence level using a t-test (one-tailed, n=62):

Null Hypothesis H_o: $r = 0$

Research Hypothesis H_1: $r > 0$

As the absolute value of t (0.30) was less than the critical value of t (1.66), we do not reject the null hypothesis and conclude that there is not enough statistical support for the research hypothesis stating that as the amount of training increases, the overall job satisfaction of the employee will increase.

The second research proposition investigates the effect of the perceived helpfulness of training programs on overall job satisfaction:

2c. For employees participating in one or more employer-provided training programs, as the perceived helpfulness of training increases, the overall job satisfaction of the employee will increase.

For research proposition 2c, the Independent Variable, the perceived helpfulness of the training (in-house or public classroom training) for each of the 62 respondents who indicated that they participated in training programs, was calculated. The Dependent Variable was then found for each of these respondents by adding the score values of the responses for each of the 20 questions comprising the JS Index (Overall Job Satisfaction).

The Correlation (r) of the perceived helpfulness of training and JS Index was then computed and was found to be r=0.2781 with a Coefficient of Determination, $r^2 = 0.0773$. To determine the significance of this result, the following hypothesis was tested at a 95% confidence level using a t-test (one-tailed, n=62):

Null Hypothesis H_o: $r = 0$

Research Hypothesis H_1: $r > 0$

As the absolute value of t (2.24) exceeded the critical value of t (1.66), we reject the null hypothesis and conclude that there is enough statistical support for the research hypothesis stating that as the perceived helpfulness of training increases, the overall job satisfaction of the employee will increase.

Relationship Between Participation in Employer-Provided Professional Development Programs and Components of Organizational Commitment

According to Meyer and Allen (1997), the three components of organizational commitment are: affective (AC), continuance (CC), and normative (NC). The following series of research propositions were advanced to examine the relationship between participation in employer-provided professional development programs and each of the components of organizational commitment using the same methods as before.

3a. As participation in employer-provided professional development programs increases, the affective commitment of the employee will increase.

The Independent Variable, PDP Index, was calculated as before by finding the total number of employer-provided professional development programs participated in by each respondent. The Dependent Variable was then found for each respondent by adding the score values of the responses for each of the 6 questions comprising the AC Index (Affective Commitment). The Correlation (r) of the PDP Index and AC Index was then computed and was found to be r=0.2246 with a Coefficient of Determination, $r^2 = 0.0505$. To determine the significance of this result, the following hypothesis was tested at a 95% confidence level using a t-test (one-tailed, n=118):

Null Hypothesis H_o: $r = 0$

Research Hypothesis H_1: $r > 0$

As the absolute value of t (2.48) exceeded the critical value of t (1.66), we reject the null hypothesis and conclude that there is enough statistical support for the research hypothesis stating that as participation in employer-provided professional development programs increases, the affective commitment of the employee will increase.

As it was theorized that the relationship between participation in employer-provided professional development programs might vary according to the type of program (firm-specific or general), to test the relationship with continuance commitment the two following research propositions were postulated and tested. The first investigates the relationship between participation in firm-specific programs and continuance commitment:

3b. As participation in firm-specific employer-provided professional development programs increases, the continuance commitment of the employee will increase.

For hypothesis 3b, the Independent Variable, FSP Index, was calculated by finding the total number of firm-specific employer-provided professional development programs participated in by each respondent. The Dependent Variable was then found for each respondent by adding the score values of the responses for each of the 6 questions comprising the CC Index (Continuance Commitment). The Correlation (r) of the FSP Index and CC Index was then computed and was found to be r=-0.2489 with a Coefficient of Determination, $r^2 = 0.0619$. As the correlation was found to be negative, but was predicted to be positive, this result was not evaluated further and it was concluded that there is not enough statistical support for the research hypothesis stating that as participation in firm-specific employer-provided professional development programs increases, the continuance commitment of the employee will increase.

The second research proposition investigates the relationship between participation in general programs and continuance commitment:

3c. As participation in general employer-provided professional development programs increases, the continuance commitment of the employee will decrease.

For hypothesis 3c, the Independent Variable, GP Index was calculated by finding the total number of general employer-provided professional development programs participated in by each respondent. The Correlation (r) of the GP Index and CC Index was then computed and found to be r=-0.0323 with a Coefficient of Determination, r^2 = 0.0010. A t-test (one-tailed, n=118) was then performed to evaluate this result. However, as the absolute value of t (-0.35) was less than the critical value of t (1.66), we do not reject the null hypothesis and conclude that there is not enough statistical support for the research hypothesis stating that as participation in general employer-provided professional development programs increases, the continuance commitment of the employee will decrease.

To investigate the relationship between participation in employer-provided professional development and normative commitment the following research proposition was advanced:

3d. As participation in employer-provided professional development programs increases, the normative commitment of the employee will increase.

The Independent Variable, PDP Index, was calculated as before by finding the total number of employer-provided professional development programs participated in by each respondent. The Dependent Variable was then found for each respondent by adding the score values of the responses for each of the 6 questions comprising the NC Index (Normative Commitment). The Correlation (r) of the PDP Index and NC Index was then

computed and was found to be r=0.0775 with a Coefficient of Determination, $r^2 = 0.0060$. To determine the significance of this result, the following hypothesis was tested at a 95% confidence level using a t-test (one-tailed, n=118):

Null Hypothesis H_o: $r = 0$

Research Hypothesis H_1: $r > 0$

Although a weak positive correlation was found, as the absolute value of t (0.84) was less than the critical value of t (1.66) we do not reject the null hypothesis and conclude that there is not enough statistical support for the research hypothesis stating that as participation in employer-provided professional development programs increases, the normative commitment the employee will increase.

Finally, to further test the findings of Saks' 1996 study on organizational commitment the following research proposition was advanced:

3e. For employees participating in one or more employer-provided training programs, as the amount and helpfulness of training increases, the affective commitment of the employee will increase.

For this test, training amount and training helpfulness were separately compared with the Affective Commitment (AC Index) scores as follows:

3e. For employees participating in one or more employer-provided training programs, as the amount of training increases, the affective commitment of the employee will increase.

For research proposition 3e, the Independent Variable, the number of weeks training (in-house or public classroom training) for each of the 62 respondents who indicated that they participated in training programs during the past year, was calculated. The Dependent Variable was the AC Index as described previously. The Correlation (r) of the number of weeks training and AC Index was then computed and was found to be r=0.0659 with a Coefficient of Determination, $r^2 = 0.0043$. To determine the significance of this result, the following hypothesis was tested at a 95% confidence level using a t-test (one-tailed, n=62):

Null Hypothesis H_o: $r = 0$

Research Hypothesis H_1: $r > 0$

Although a weak positive correlation was found, as the absolute value of t (0.51) was less than the critical value of t (1.66) we do not reject the null hypothesis and conclude that there is not enough statistical support for the research hypothesis stating that as the amount of training increases, the affective commitment of the employee will increase.

3f. For employees participating in one or more employer-provided training programs, as the helpfulness of training increases, the affective commitment of the employee will increase.

To test research proposition 3f, the Independent Variable, the perceived helpfulness of the training (in-house or public classroom training) for each of the 62 respondents who indicated that they participated in training programs, was calculated. The Dependent Variable was the AC Index as described previously. The Correlation (r)

of the perceived helpfulness of training and AC Index was then computed and was found to be r=0.1451 with a Coefficient of Determination, $r^2 = 0.0210$. To determine the significance of this result, the following hypothesis was tested at a 95% confidence level using a t-test (one-tailed, n=62):

Null Hypothesis H_o: $r = 0$

Research Hypothesis H_1: $r > 0$

Again, although a weak positive correlation was found, as the absolute value of t (1.41) was less than the critical value of t (1.66) we do not reject the null hypothesis and conclude that there is not enough statistical support for the research hypothesis stating that as the helpfulness of training increases, the affective commitment of the employee will increase.

Summary of Hypothesis Testing

Table 17 below summarizes the findings of the hypothesis testing described in this chapter. In all cases except one, the direction of the relationship between the variables was as expected, but the results were not always statistically significant. The hypotheses stating that a statistically significant positive correlation between participation in employer-provided professional development programs and either job satisfaction or affective commitment were supported. Also, a statistically significant positive correlation was found between perceived helpfulness of training and job satisfaction. These findings will be discussed further in the next chapter.

Table 17: Summary of Hypothesis Testing Results

1	PDP Index	IM Index	Pos. Corr.	Pos. Corr.	No	No
2a	PDP Index	JS Index	Pos. Corr.	Pos. Corr.	Yes	Yes
2b	Train. Amt.	JS Index	Pos. Corr.	Pos. Corr.	No	No
2c	Train. Help.	JS Index	Pos. Corr.	Pos. Corr.	Yes	Yes
3a	PDP Index	AC	Pos. Corr.	Pos. Corr.	Yes	Yes
3b	FSP Index	CC	Pos. Corr.	Neg. Corr.	No	No
3c	GP Index	CC	Neg. Corr.	Neg. Corr.	No	No
3d	PDP Index	NC	Pos. Corr.	Pos. Corr.	No	No
3e	Train. Amt.	AC	Pos. Corr.	Pos. Corr.	No	No
3f	Train. Help.	AC	Pos. Corr.	Pos. Corr.	No	No

Analysis of Exploratory Data

An analysis of the exploratory data collected in this survey was conducted using MS Excel and SPSS. Industry classification and the size of the organizations represented were eliminated from this analysis as it was felt that the sample might not be sufficiently representative in these categories.

Effect of Demographic Variables on Attitude

Correlations of each demographic variable with the individual attitude measurement scales were calculated. The following relationships were found to be statistically significant and may be "main effects" influencing different types of attitudes:

- Age and affective commitment,
- Project management experience and intrinsic motivation, and

- Tenure and affective commitment.

The results of the correlation analyses are summarized in Table 18 below.

Table 18: Correlation Analyses – Demographic Variables and Attitudes

Gender	-.085	-.129	.048	-.027	.083
Age	.117	.043	.189*	.040	.034
Education Level	-.027	-.071	-.060	-.045	.062
Professional Certification	.014	-.018	-.064	-.078	-.072
PM Experience	.204*	-.003	.152	.028	.071
Tenure	.014	.048	.186*	.139	.105

* Correlation significant at the 0.05 level (2-tailed, n=118).

Effect of Participation on Attitude

The correlations of the participation level in firm-specific professional development programs and general professional development programs with the individual attitude measurement scales were calculated. The following relationships were found to be statistically significant and may be "main effects" influencing different types of attitudes:

- Participation in either type of program and overall job satisfaction, and
- Participation in firm-specific programs on both affective commitment and continuance commitment.

The results of the correlation analyses are summarized in Table 19 below.

Table 19: Correlation Analyses – Participation Level and Attitudes

Firm-Specific Programs	.113	.200*	.201*	-.249**	.020
General Programs	.135	.251**	.177	-.032	.089

* Correlation significant at the 0.05 level (2-tailed, n=118).
** Correlation significant at the 0.01 level (2-tailed, n=118).

Effect of Individual Program Types on Attitude

The correlations of participation in each type of professional development program and individual attitude measurement scales were calculated. The following relationships were statistically significant and may be "main effects" influencing different types of attitudes:

- PM Seminars, Symposia or Conferences, PM Periodicals, Informal Mentoring Programs and overall job satisfaction;
- PM Seminars, Symposia or Conferences, PM Periodicals and affective commitment;
- PM Degree Programs, Internal Certification Programs and continuance commitment.

The results of the correlation analyses for the most important program types are summarized in Table 20 below.

Table 20: Correlation Analyses – Participation by Program Type and Attitudes

PM Seminars, Symposia and Conferences	.175	.264**	.218*	-.102	.147
PM Periodicals	.038	.196*	.186*	.103	.118
PM Degree Programs	-.032	.000	.026	-.199*	.052
Internal PM Certification Programs	-.084	.033	-.054	-.314**	-.104
Informal Mentoring	.105	.197*	.170	-.063	.019

* Correlation significant at the 0.05 level (2-tailed, n=118).
** Correlation significant at the 0.01 level (2-tailed, n=118).

Effect of Gender on Participation

As gender was thought to be an important variable but no statistically significant results had been revealed in the tests performed so far, a further analysis was performed to examine the effect of gender on participation in professional development programs. In this test, an Analysis of Variance (ANOVA) and a Tukey t-test was performed to discover if there was any statistically significant difference in the participation levels in professional development programs for the group of male respondents and for the group of female respondents.

It was found that the mean participation level for the group of males was 4.03 programs, and for the group of females was 3.15 programs, and this result was statistically significant at the 0.05 level. This result indicates that gender is an antecedent to participation in professional development programs.

V. CONCLUSIONS

Introduction

In this chapter, the findings of the study are discussed, followed by the limitations of the study and recommendations for further research. Finally, conclusions are drawn and some suggestions for practical application of the findings are provided.

Discussion of Intrinsic Motivation Results

The mean IM (Intrinsic Motivation) Index score was found to be high (mean 32.7, s.d. 4.09) suggesting overall agreement with the questions contained in the scale. However, the results of the hypothesis test to determine the relationship between participation in employer-provided professional development programs and intrinsic motivation were not statistically significant. These results indicate that the project managers surveyed had a fairly high intrinsic motivation level, but for this group participation in employer-provided professional development programs was not the main reason.

A further analysis of the sub-scales contained in the Job Satisfaction Index provides more clues as to what may actually motivate this group. It appears that factors such as moral values, variety in the work, the working conditions, social service, creativity, responsibility, ability utilization and achievement are very important to this group, as the respondents rated their satisfaction level highly in each area. This finding is consistent with the literature on motivation (Herzberg, 1959).

However, it was expected that "personal growth" would be an important motivator to this group but this did not emerge from the results. It was theorized that this might be due to the group of project managers being highly educated and experienced. Perhaps participation in professional development programs is not as necessary for them as they already have sufficient knowledge and skills to be effective in their work, and if it is firm specific training, it could be perceived by the project managers as controlling, or a waste of time. As Thierry (1990) notes, the idea of personal causation, or having the ability to choose whether to participate in a professional development program or not, may be the key to understanding these confounding results.

Discussion of Job Satisfaction Results

When considering participation in the wide variety of professional development programs encompassed by the PDP (Professional development Program) Index, it was found that participation in these programs had a statistically significant positive relationship with job satisfaction. However, when considering classroom training by itself, it seemed that quality rather than quantity of training is most important to the group of project managers. Investigating the relationship between the amount of training received in the last year and job satisfaction revealed a very weak positive correlation that was not statistically significant. A statistically significant positive relationship was found between the perceived helpfulness of the training and overall job satisfaction.

The main reason for the difference in results between this study of a group of project managers and Saks' (1996) study of a group of accountants appears to be the experience level of the subjects in each study. In Saks' study, his group of respondents

was comprised of entry-level accountants. As already observed, the project managers surveyed were generally a highly-experienced group. This suggests that experience level might be a moderator of the relationship between quantity of training and job satisfaction. As discussed earlier, it seems possible that too much training, or training that is not viewed as helpful to the individual's job, could have a negative impact on overall job satisfaction. This finding suggests that in the overall design of a project management professional development program, classroom training should be carefully evaluated and selected by managers to align with the employee's immediate training needs, in both content and duration, to deliver optimal value to both the employee and the employer.

Discussion of Organizational Commitment Results

As predicted, participation in employer-provided professional development programs resulted in a statistically significant positive correlation with affective commitment. However, participation in general professional development programs did not have the expected effect on continuance commitment or normative commitment. In fact, the correlation between participation in firm-specific professional development programs and continuance commitment resulted in the opposite sign to the predicted result (based on the findings of Meyer and Allen's 1997 study). It was thought that continuance commitment would increase as participation in firm-specific professional development programs increased because participants would feel that their skills were not transferable to other companies and their marketability to other employers would possibly be reduced.

This unexpected result could indicate a problem with the measurement scale for Professional Development Programs. Perhaps the list of professional development programs was not appropriately segregated into "firm-specific" and "general" programs. Or possibly the respondents overlooked the small, but important differences between such programs as in-house classroom training and public classroom training when completing the questionnaire. This assumes there is such a thing as "firm-specific" project management programs. If the company bases its in-house project management training on an external authority such as PMI's PMBOK, these would be transferable skills and the positive relationship with continuance commitment would be valid.

There may have been a "timing issue" in conducting this survey. Unfortunately data collection took place just a few weeks after the September 11, 2001 tragedies, which created great uncertainty in people due to the immediate impacts on the financial markets, and airline and tourism-related industries. Within a short time, there was daily news of downsizing and layoffs. It is possible that respondents felt more of a need to hold onto the stability of their jobs at this time, temporarily impacting the continuance and normative commitment scores. This seems likely, as Meyer and Allen (1997) observe that an important antecedent to continuance commitment is a perceived lack of employment alternatives. Consequently, in the economic climate immediately following the tragedies, respondents may have felt that their alternate employment prospects were diminishing (increasing continuance commitment) or that they needed to be even more loyal to their organizations in such difficult times (increasing normative commitment).

As the findings of Saks' (1996) study reported a statistically significant positive relationship between the amount and helpfulness of training and the (assumed affective)

commitment of his subjects, these hypotheses were also tested for the group of project managers. However, Saks' findings were not confirmed with the group of project managers and again, the experience level of the project managers may be the principal reason for the differences in the results.

Discussion of Exploratory Research

Statistically significant positive relationships were found between the employee's age, tenure with the organization and affective commitment. This agrees with Meyer and Allen's (1997) findings. The authors theorized that employees need time and experience with an organization to become strongly attached to it. They also suggest that age plays a role in the development of affective commitment. Both of these ideas seem intuitively correct as they suggest an increasing level of maturity and the willingness to become identified with the organization over time. Also, employees who are not willing to become attached to the organization have probably moved on to another employer (p. 43-44).

The analysis of the relationship between participation in professional development programs and the impact on various attitudes revealed statistically significant relationships between participation level and overall job satisfaction and affective commitment. These findings suggest that the organization's investment in professional development programs for its project managers may be helpful in the development of satisfied, committed employees.

No doubt organizations would also want to know where to invest their training budgets to yield the best return. The analysis of participation levels in specific

professional development programs reveals that PM Seminars, Symposia and Conferences, providing PM Periodicals and informal mentoring programs will have the most impact on overall job satisfaction and affective commitment. Similarly, PM Seminars, Symposia and Conferences, PM Degree programs and certification programs will have the effect of reducing continuance commitment. This is a desirable response from both the employee's and the organization's perspective.

The finding that females are less likely to participate in the professional development programs than males may be important. We do not know if this is happening because the female respondents are being offered less opportunity to participate by their employers, or whether they are less available to participate in programs that are after normal work hours or out of town. Other possibilities are that the female respondents could feel less need to participate than their male counterparts, or that they are simply less aware of the various programs. This indicates the need for further research in this area.

Limitations of the Study and Recommendations for Further Research

Although many of the stated objectives for this study were achieved, some were not. The sample of respondents was heavily weighted toward project managers practicing in the application areas of Information Systems and Telecommunications. To be able to demonstrate industry-specific differences in approaches to the professional development of project managers and the resulting attitudes, a better cross-industry sample would be required.

It was thought that the professional organization used for the sampling frame would have more members representing the aerospace and manufacturing industries, as there are major companies in the region from each of these industries. In reviewing the results, it was theorized that these companies might have internal certification programs and well-defined career paths established for their project managers. If this is the case, project managers in the aerospace or manufacturing industries may feel less of a need to be affiliated with a professional organization like PMI, simply because their professional development needs are already being met by their employers' programs. Or, if these companies are already investing in internally developed programs, they may not be willing to pay the membership dues for participation in professional organizations. The recommendation for further research is to repeat the study with a different sampling frame to provide access to project managers from other application areas of project management, such as aerospace, defense, manufacturing, construction and engineering.

The organizational commitment constructs require further research due to the confounding results for continuance commitment and normative commitment. Also, it appears that the continuance commitment and normative commitment constructs are not well understood in the literature, so more work to develop and/or validate the attitude measurement scales seems to be a necessary first step. As the timing of data collection for these constructs may be important, this suggests that a longitudinal study to investigate how organizational commitment may change over time will yield more insight.

As the focus of the study was employer-paid professional development programs, data on participation in self-paid professional development programs was not gathered.

By inference from available data, we know that a number of respondents must be paying their own membership dues for participation in the professional organization surveyed. However, we do not know to what extent these respondents are investing in their own professional development in part or in full, nor the effects on their intrinsic motivation, job satisfaction or organizational commitment. The human capital literature suggests that both parties, employer and employee; make investments in the acquisition of skills and knowledge. A further study to investigate the effect of self-paid professional development programs on the attitudes of project managers is therefore recommended.

In the analysis of the exploratory data many correlations were run to discover if any statistically significant relationships existed. It is possible that 5% of the results could be statistically significant by chance which limits the value of the exploratory research findings and indicates the need for further research.

Conclusions and Recommendations

The findings of this research demonstrate a measurable return in job satisfaction and affective commitment when organizations invest in providing professional development programs for their project managers. According to the literature, an improvement in project success rate may also be realized. However, these findings should be interpreted with caution in the context of a particular organization. There are many other factors influencing employee attitudes that need to also be considered in the implementation of new professional development programs.

Clearly, the professional development needs of the individual employees should be considered in the design of their "training" plans. It is recommended that these plans

should be geared not only to the information needs of the employee, but also to their experience level. This means that classroom training may not be the appropriate delivery method for all project management instruction. In the case of experienced project managers, simply providing project management reading materials or encouraging informal mentoring to occur may ultimately have the biggest impact on the project managers' professional development at the least cost to the organization.

Appendix A
Project Management Professional Development Questionnaire

Part A: Demographic Information

Please answer the questions below by checking the box next to the response that most closely fits your answer. The answers to these questions will be used for classification purposes and to compare groups of individuals completing the survey only. Please note that "your employer" means your current or most recent employment in a project management role.

1. How many years total experience do you have in project management?

	Please Check One Box
Less than 1 year	
1 - 5 years	
6 - 10 years	
11 - 15 years	
16 - 20 years	
21 – 25 years	
More than 25 years	

2. How many years have you been employed by your present employer?

	Please Check One Box
Less than 1 year	
1 - 5 years	
6 - 10 years	
11 - 15 years	
16 - 20 years	
21 – 25 years	
More than 25 years	

3. What is your gender?

	Please Check One Box
Female	
Male	

4. What is your age category?

	Please Check One Box
25 or younger	
26 - 35	
36 - 45	
46 - 55	
56 - 65	
66 and over	

5. What is the highest education level you have attained?

	Please Check One Box
High School graduate or equivalent	
Some undergraduate-level coursework	
Bachelor's Degree	
Some graduate-level coursework	
Master's Degree	
Doctorate Degree	

6. Do you presently hold professional certification in project management (i.e. PMP or equivalent)?

	Please Check One Box
Yes	
No	

7. Please classify your employer's primary business activity. If uncertain, please select the "other" category and describe in the space provided.

	Please Check One Box
Aerospace and/or Defense	
Automotive	
Design and/or Construction	
Education and/or Training	
Environmental Management	
Financial Services	
Government	
Information Management and Movement (Telecommunications)	
Information Systems	
Manufacturing	
Oil, Gas and Petrochemical	
Pharmaceutical	
Service and Outsourcing	
Utilities	
Other, please specify	

8. What area of your organization do you work in? If uncertain, please select the "other" category and describe in the space provided.

	Please Check One Box
Research and Development	
Manufacturing	
Information Systems	
Marketing/Sales	
Financial/Legal	
Engineering	
Contract Management/Procurement	
Project Office	
Other, please specify	

9. Overall, approximately how many people work for your entire organization, including wholly owned subsidiaries? Please include full-time, part-time and contractors. If uncertain, please give your best estimate.

	Please Check One Box
Less than 100 employees	
101 to 500 employees	
501 to 1,000 employees	
1,001 to 5,000 employees	
5,001 to 10,000 employees	
10.001 to 20,000 employees	
20,001 to 30,000 employees	
30,001 or more employees	

10. Which job title best describes your position or job function? If uncertain, please select the "other" category and describe in the space provided.

	Please Check One Box
Project Management Trainee	
Project Leader	
Project Manager	
Program Manager	
Manager of Project Management	
Project Management Trainer	
Project Engineer	
Project Management Consultant	
Executive Management	
Other, please specify	

Part B: Your Feelings About Your Job

In your answers to the questions in this section please tell us how you feel about your current or most recent job in a project management role.

11. For the questions appearing below, please indicate your level of agreement or disagreement with each statement by checking the box to indicate your response next to each question.

SA – Strongly Agree
A – Agree
N – Neither Agree nor Disagree/Neutral
D – Disagree
SD – Strongly Disagree

		SD	D	N	A	SA
11a	I enjoy my work					
11b	I feel competent in my job					
11c	I feel in control of my work					
11d	I feel that I make a difference in the workplace					
11e	I get so engrossed in my work that time flies by					
11f	I have the ability to get the job done					
11g	Sometimes I work through lunch because I want to get my work done					
11h	I am accomplishing my personal goals in my work					

12. For the questions appearing below, please indicate your level of satisfaction or dissatisfaction with each aspect of your job by checking the box to indicate your response next to each question.

VDS – Very Dissatisfied
DS - Dissatisfied
N - Undecided/Neutral
S - Satisfied
VS – Very Satisfied

		VDS	DS	N	S	VS
12a	Being able to keep busy all the time					
12b	The chance to work alone on the job					
12c	The chance to do different things from time to time					
12d	The chance to be "somebody" in the workplace					
12e	The way my boss handles his/her people					
12f	The competence of my supervisor in making decisions					
12g	Being able to do things that don't go against my conscience					
12h	The way my job provides for steady employment					
12i	The chance to do things for other people					
12j	The chance to tell other people what to do					
12k	The chance to do something that makes use of my abilities					
12l	The way company policies are put into practice					
12m	My pay and the amount of work I do					
12n	The chances for advancement on this job					
12o	The freedom to use my own judgment					
12p	The chance to try my own methods of doing the job					
12q	The working conditions					
12r	The way my co-workers get along with each other					
12s	The praise I get for doing a good job					
12t	The feeling of accomplishment I get from my job					

13. For the questions appearing below, please indicate your level of agreement or disagreement with each statement by checking the box to indicate your response next to each question. "This organization" means your present employer.

SA – Strongly Agree
A – Agree
N – Neither Agree nor Disagree/Neutral
D – Disagree
SD – Strongly Disagree

		SD	D	N	A	SA
13a	I would be very happy to spend the rest of my career in this organization					
13b	I really feel as if this organization's problems are my own					
13c	I do not feel like "part of the family" at my organization					
13d	I do not feel "emotionally attached" to this organization					
13e	This organization has a great deal of personal meaning for me					
13f	I do not feel a strong sense of belonging to my organization					
13g	It would be very hard for me to leave my organization right now, even if I wanted to					
13h	Too much of my life would be disrupted if I decided I wanted to leave my organization right now					
13i	Right now, staying with my organization is a matter of necessity as much as desire					
13j	I believe that I have too few options to consider leaving this organization					
13k	One of the few negative consequences of leaving this organization would be the scarcity of available alternatives					
13l	Another organization may not match the overall benefits I have here					
13m	I do not feel any obligation to remain with my current employer					
13n	Even if it were to my advantage, I do not feel it would be right to leave my organization now					
13o	I would feel guilty if I left my organization now					
13p	The organization deserves my loyalty					
13q	I have a sense of obligation to the people in my organization					
13r	I owe a great deal to my organization					

Part C: Employer-Provided Professional Development Programs

14. Which employer-provided professional development programs have you participated in during the last year?
Please check the boxes below to indicate program participation.

Program Description	***Check All Applicable Boxes***
Project Management Classroom Training (in-house)	
Project Management Classroom Training (public courses)	
Project Management Seminars, Symposia or Conferences	
Project Management CBTs	
Project Management Books	
Project Management Periodicals	
Project Management Degree Program Sponsorship	
Project Management Certification Program Sponsorship – internal	
Project Management Certification Program Sponsorship – external (i.e. PMP)	
Formal Mentoring Program	
Informal Mentoring Program	
Membership in Professional Associations for Project Managers	
Formal Career Path for Project Management	
Other, please specify:	

15. Which professional development programs does your employer provide, whether you have participated in them or not?
Please check the boxes below to indicate available programs.

Program Description	***Check All Applicable Boxes***
Project Management Classroom Training (in-house)	
Project Management Classroom Training (public courses)	
Project Management Seminars, Symposia or Conferences	
Project Management CBTs	
Project Management Books	
Project Management Periodicals	
Project Management Degree Program Sponsorship	
Project Management Certification Program Sponsorship – internal	
Project Management Certification Program Sponsorship – external (i.e. PMP)	
Formal Mentoring Program	
Informal Mentoring Program	
Membership in Professional Associations for Project Managers	
Formal Career Path for Project Management	
Other, please specify:	

16. If you participated in a project management-mentoring program during the last year, what gender was your mentor?

	Please Check One Box
Female	
Male	

17. If you participated in an informal project management-mentoring program during the last year, please indicate your satisfaction with this program.
Please check one box below to indicate your overall satisfaction level.

Extremely Satisfied	*Satisfied*	*Neutral*	*Dissatisfied*	*Extremely Dissatisfied*

18. If you participated in a formal project management-mentoring program during the last year, please indicate your satisfaction with this program.
Please check one box below to indicate your overall satisfaction level.

Extremely Satisfied	*Satisfied*	*Neutral*	*Dissatisfied*	*Extremely Dissatisfied*

19. If you participated in one or more project management training programs (in-house or public) during the last year, how many weeks training in total did you receive?

	Please Check One Box
Less than 1 week	
1 week	
2 weeks	
3 weeks	
4 weeks	
5 weeks	
6 or more weeks	

20. If you participated in one or more project management training programs (in-house or public) during the last year, please indicate the overall helpfulness of the training to your job function.
Please check one box below to indicate the overall helpfulness of the training.

Extremely Helpful	*Helpful*	*Neutral*	*Unhelpful*	*Extremely Unhelpful*

Thank you for taking the time to complete this survey!

Angela D. Holden, PMP
P.O. Box 2296
St. Peters, MO 63376

October 2001

Dear Project Management Colleague,

I am writing to you on this occasion not as your local PMI Chapter president, but to invite you to participate in a study that I am conducting among a group of project management professionals titled "A Study of the Relationship Between Participation in Employer-Provided Professional Development Programs and Project Managers' Intrinsic Motivation, Job Satisfaction and Organizational Commitment." This research is to fulfill requirements of the Doctor of Management Program of Webster University, St. Louis, MO and is approved by the University's Institutional Review Board (IRB). I also feel that it is important research, as these relationships have not yet been the object of study for a group of project management professionals.

Your participation in this survey is voluntary and it should take about 20 minutes to complete. Your responses are anonymous and confidential. Data gathered by the survey will be used for categorization of results or for statistical tests and you will not be individually identified at any time.

If you have any questions about this survey please contact:

Principal Investigator: Angela Holden
(314) 512-2341

Faculty Advisor: Gary Renz, Ph.D.
Webster University
(314) 961-2660 Ext. 7685

For questions concerning Webster University's policy and procedure concerning research involving human subjects, please contact:

IRB Chair: Michael Hulsizer, Ph. D.
Webster University
(314) 968-5912

I greatly appreciate your time to complete the attached questionnaire. When complete, please fold the questionnaire with the return address and postage stamp to the outside, seal with tape, and mail to the address shown above by October 31, 2001.

Thank you!

Appendix B
Professional Development Program Index and Attitude Measurement Scales

Professional Development Program (PDP) Index

"Y" in either the Firm-Specific Program or General Program column indicates how participation in each program will be categorized for hypothesis testing. If the respondent selects "Other" and specifies a type of professional development program, attempts will first be made to reclassify the response into one of the other categories by expert judgment.

Program Description	Firm-Specific Program	General Program
Project Management Classroom Training (in-house)	Y	
Project Management Classroom Training (public courses)		Y
Project Management Seminars, Symposia or Conferences		Y
Project Management CBTs		Y
Project Management Books		Y
Project Management Periodicals		Y
Project Management Degree Program Sponsorship		Y
Project Management Certification Program Sponsorship – internal	Y	
Project Management Certification Program Sponsorship – external (i.e. PMP)		Y
Formal Mentoring Program	Y	
Informal Mentoring Program	Y	
Membership in Professional Associations for Project Managers		Y
Formal Career Path for Project Management	Y	
Other, please specify:		

Intrinsic Motivation Index

Scale categories adapted from the Intrinsic Motivation Inventory (IMI), McAuley et al, (1989, 1991).
"R" in Reverse Score column indicates that this item will be reverse scored.

Scale	Question #	Reverse Score	Question
Effort/Importance	11d		I feel that I make a difference in the workplace
Effort/Importance	11g		Sometimes I work through lunch because I want to get my work done
Interest/Enjoyment	11a		I enjoy my work
Interest/Enjoyment	11e		I get so engrossed in my work that time flies by
Perceived Competence	11b		I feel competent in my job
Perceived Competence	11f		I have the ability to get the job done
Self-Determination	11c		I feel in control of my work
Self-Determination	11h		I am accomplishing my personal goals in my work

Job Satisfaction Scales

Minnesota Satisfaction Questionnaire Short Form (MSQ), Weiss et al (1967).
"R" in Reverse Score column indicates that this item will be reverse scored.

Scale: Sub Scale	Question #	Reverse Score	Question
Intrinsic: Advancement	12n		The chances for advancement on this job
Intrinsic: Activity	12a		Being able to keep busy all the time
Intrinsic: Working conditions	12q		The working conditions
Intrinsic: Social status	12d		The chance to be "somebody" in the workplace
Intrinsic: Social service	12i		The chance to do things for other people
Intrinsic: Moral values	12g		Being able to do things that don't go against my conscience
Intrinsic: Independence	12b		The chance to work alone on the job
Intrinsic: Creativity	12p		The chance to try my own methods of doing the job
Intrinsic: Co-workers	12r		The way my co-workers get along with each other
Intrinsic: Compensation	12m		My pay and the amount of work I do
Intrinsic: Achievement	12t		The feeling of accomplishment I get from my job
Intrinsic: Ability Utilization	12k		The chance to do something that makes use of my abilities
General Only: Supervision – Technical	12f		The competence of my supervisor in making decisions
General Only: Supervision – HR	12e		The way my boss handles his/her people
Extrinsic: Variety	12c		The chance to do different things from time to time
Extrinsic: Security	12h		The way my job provides for steady employment
Extrinsic: Responsibility	12o		The freedom to use my own judgment
Extrinsic: Recognition	12s		The praise I get for doing a good job
Extrinsic: Company policies and practices	12l		The way company policies are put into practice
Extrinsic: Authority	12j		The chance to tell other people what to do

Organizational Commitment Scales (Affective, Continuance and Normative Commitment)

Organizational Commitment Questionnaire (OCQ), Meyer and Allen (1997). "R" in Reverse Score column indicates that this item will be reverse scored.

Scale	Question #	Reverse Score	Question
Affective	13a		I would be very happy to spend the rest of my career in this organization
Affective	13b		I really feel as if this organization's problems are my own
Affective	13c	R	I do not feel like "part of the family" at my organization
Affective	13d	R	I do not feel "emotionally attached" to this organization
Affective	13e		This organization has a great deal of personal meaning for me
Affective	13f	R	I do not feel a strong sense of belonging to my organization
Continuance	13g		It would be very hard for me to leave my organization right now, even if I wanted to
Continuance	13h		Too much of my life would be disrupted if I decided I wanted to leave my organization right now
Continuance	13i		Right now, staying with my organization is a matter of necessity as much as desire
Continuance	13j		I believe that I have too few options to consider leaving this organization
Continuance	13k		One of the few negative consequences of leaving this organization would be the scarcity of available alternatives
Continuance	13l		Another organization may not match the overall benefits I have here
Normative	13m	R	I do not feel any obligation to remain with my current employer
Normative	13n		Even if it were to my advantage, I do not feel it would be right to leave my organization now
Normative	13o		I would feel guilty if I left my organization now
Normative	13p		The organization deserves my loyalty
Normative	13q		I have a sense of obligation to the people in my organization
Normative	13r		I owe a great deal to my organization

Appendix C
Coding Scheme for Responses to Questionnaire

Part A: Demographic Information

Please answer the questions below by checking the box next to the response that most closely fits your answer. The answers to these questions will be used for classification purposes and to compare groups of individuals completing the survey only. Please note that "your employer" means your current or most recent employment in a project management role.

1. How many years total experience do you have in project management?

	Please Check One Box
Less than 1 year	1
1 - 5 years	2
6 - 10 years	3
11 - 15 years	4
16 - 20 years	5
21 – 25 years	6
More than 25 years	7

2. How many years have you been employed by your present employer?

	Please Check One Box
Less than 1 year	1
1 - 5 years	2
6 - 10 years	3
11 - 15 years	4
16 - 20 years	5
21 – 25 years	6
More than 25 years	7

3. What is your gender?

	Please Check One Box
Female	1
Male	2

4. What is your age category?

	Please Check One Box
25 or younger	1
26 - 35	2
36 - 45	3
46 - 55	4
56 - 65	5
66 and over	6

5. What is the highest education level you have attained?

	Please Check One Box
High School graduate or equivalent	1
Some undergraduate-level coursework	2
Bachelor's Degree	3
Some graduate-level coursework	4
Master's Degree	5
Doctorate Degree	6

6. Do you presently hold professional certification in project management (i.e. PMP or equivalent)?

	Please Check One Box
Yes	1
No	2

7. Please classify your employer's primary business activity. If uncertain, please select the "other" category and describe in the space provided.

	Please Check One Box
Aerospace and/or Defense	1
Automotive	2
Design and/or Construction	3
Education and/or Training	4
Environmental Management	5
Financial Services	6
Government	7
Information Management and Movement (Telecommunications)	8
Information Systems	9
Manufacturing	10
Oil, Gas and Petrochemical	11
Pharmaceutical	12
Service and Outsourcing	13
Utilities	14
Other, please specify	15

8. What area of your organization do you work in? If uncertain, please select the "other" category and describe in the space provided.

	Please Check One Box
Research and Development	1
Manufacturing	2
Information Systems	3
Marketing/Sales	4
Financial/Legal	5
Engineering	6
Contract Management/Procurement	7
Project Office	8
Other, please specify	9

9. Overall, approximately how many people work for your entire organization, including wholly owned subsidiaries? Please include full-time, part-time and contractors. If uncertain, please give your best estimate.

	Please Check One Box
Less than 100 employees	1
101 to 500 employees	2
501 to 1,000 employees	3
1,001 to 5,000 employees	4
5,001 to 10,000 employees	5
10.001 to 20,000 employees	6
20,001 to 30,000 employees	7
30,001 or more employees	8

10. Which job title best describes your position or job function? If uncertain, please select the "other" category and describe in the space provided.

	Please Check One Box
Project Management Trainee	1
Project Leader	2
Project Manager	3
Program Manager	4
Manager of Project Management	5
Project Management Trainer	6
Project Engineer	7
Project Management Consultant	8
Executive Management	9
Other, please specify	10

Part B: Your Feelings About Your Job

In your answers to the questions in this section please tell us how you feel about your current or most recent job in a project management role.

11. For the questions appearing below, please indicate your level of agreement or disagreement with each statement by checking the box to indicate your response next to each question.

SA – Strongly Agree
A – Agree
N – Neither Agree nor Disagree/Neutral
D – Disagree
SD – Strongly Disagree

		SD 1	D 2	N 3	A 4	SA 5
11a	I enjoy my work					
11b	I feel competent in my job					
11c	I feel in control of my work					
11d	I feel that I make a difference in the workplace					
11e	I get so engrossed in my work that time flies by					
11f	I have the ability to get the job done					
11g	Sometimes I work through lunch because I want to get my work done					
11h	I am accomplishing my personal goals in my work					

12. For the questions appearing below, please indicate your level of satisfaction or dissatisfaction with each aspect of your job by checking the box to indicate your response next to each question.

VDS – Very Dissatisfied
DS - Dissatisfied
N - Undecided/Neutral
S - Satisfied
VS – Very Satisfied

		VDS 1	DS 2	N 3	S 4	VS 5
12a	Being able to keep busy all the time					
12b	The chance to work alone on the job					
12c	The chance to do different things from time to time					
12d	The chance to be "somebody" in the workplace					
12e	The way my boss handles his/her people					
12f	The competence of my supervisor in making decisions					
12g	Being able to do things that don't go against my conscience					
12h	The way my job provides for steady employment					
12i	The chance to do things for other people					
12j	The chance to tell other people what to do					
12k	The chance to do something that makes use of my abilities					
12l	The way company policies are put into practice					
12m	My pay and the amount of work I do					
12n	The chances for advancement on this job					
12o	The freedom to use my own judgment					
12p	The chance to try my own methods of doing the job					
12q	The working conditions					
12r	The way my co-workers get along with each other					
12s	The praise I get for doing a good job					
12t	The feeling of accomplishment I get from my job					

13. For the questions appearing below, please indicate your level of agreement or disagreement with each statement by checking the box to indicate your response next to each question. "This organization" means your present employer.

SA – Strongly Agree
A – Agree
N – Neither Agree nor Disagree/Neutral
D – Disagree
SD – Strongly Disagree

Please note reverse scored items shown below.

		SD 1	D 2	N 3	A 4	SA 5
13a	I would be very happy to spend the rest of my career in this organization					
13b	I really feel as if this organization's problems are my own					
13c	I do not feel like "part of the family" at my organization	5	4	3	2	1
13d	I do not feel "emotionally attached" to this organization	5	4	3	2	1
13e	This organization has a great deal of personal meaning for me					
13f	I do not feel a strong sense of belonging to my organization	5	4	3	2	1
13g	It would be very hard for me to leave my organization right now, even if I wanted to					
13h	Too much of my life would be disrupted if I decided I wanted to leave my organization right now					
13i	Right now, staying with my organization is a matter of necessity as much as desire					
13j	I believe that I have too few options to consider leaving this organization					
13k	One of the few negative consequences of leaving this organization would be the scarcity of available alternatives					
13l	Another organization may not match the overall benefits I have here					
13m	I do not feel any obligation to remain with my current employer	5	4	3	2	1
13n	Even if it were to my advantage, I do not feel it would be right to leave my organization now					
13o	I would feel guilty if I left my organization now					
13p	The organization deserves my loyalty					
13q	I have a sense of obligation to the people in my organization					
13r	I owe a great deal to my organization					

Part C: Employer-Provided Programs

14. Which employer-provided professional development programs have you participated in during the last year?
Please check the boxes below to indicate program participation.
Coded 1 if checked, zero if not checked

Program Description	*Check All Applicable Boxes*
Project Management Classroom Training (in-house)	
Project Management Classroom Training (public courses)	
Project Management Seminars, Symposia or Conferences	
Project Management CBTs	
Project Management Books	
Project Management Periodicals	
Project Management Degree Program Sponsorship	
Project Management Certification Program Sponsorship – internal	
Project Management Certification Program Sponsorship – external (i.e. PMP)	
Formal Mentoring Program	
Informal Mentoring Program	
Membership in Professional Associations for Project Managers	
Formal Career Path for Project Management	
Other, please specify:	

15. Which professional development programs does your employer provide, whether you have participated in them or not?
Please check the boxes below to indicate available programs.
Coded 1 if checked, zero if not checked

Program Description	*Check All Applicable Boxes*
Project Management Classroom Training (in-house)	
Project Management Classroom Training (public courses)	
Project Management Seminars, Symposia or Conferences	
Project Management CBTs	
Project Management Books	
Project Management Periodicals	
Project Management Degree Program Sponsorship	
Project Management Certification Program Sponsorship – internal	
Project Management Certification Program Sponsorship – external (i.e. PMP)	
Formal Mentoring Program	
Informal Mentoring Program	
Membership in Professional Associations for Project Managers	
Formal Career Path for Project Management	
Other, please specify:	

16. If you participated in a project management-mentoring program during the last year, what gender was your mentor?

	Please Check One Box
Female	1
Male	2

17. If you participated in an informal project management-mentoring program during the last year, please indicate your satisfaction with this program.
Please check one box below to indicate your overall satisfaction level.

Extremely Satisfied	*Satisfied*	*Neutral*	*Dissatisfied*	*Extremely Dissatisfied*
5	4	3	2	1

18. If you participated in a formal project management-mentoring program during the last year, please indicate your satisfaction with this program.
Please check one box below to indicate your overall satisfaction level.

Extremely Satisfied	*Satisfied*	*Neutral*	*Dissatisfied*	*Extremely Dissatisfied*
5	4	3	2	1

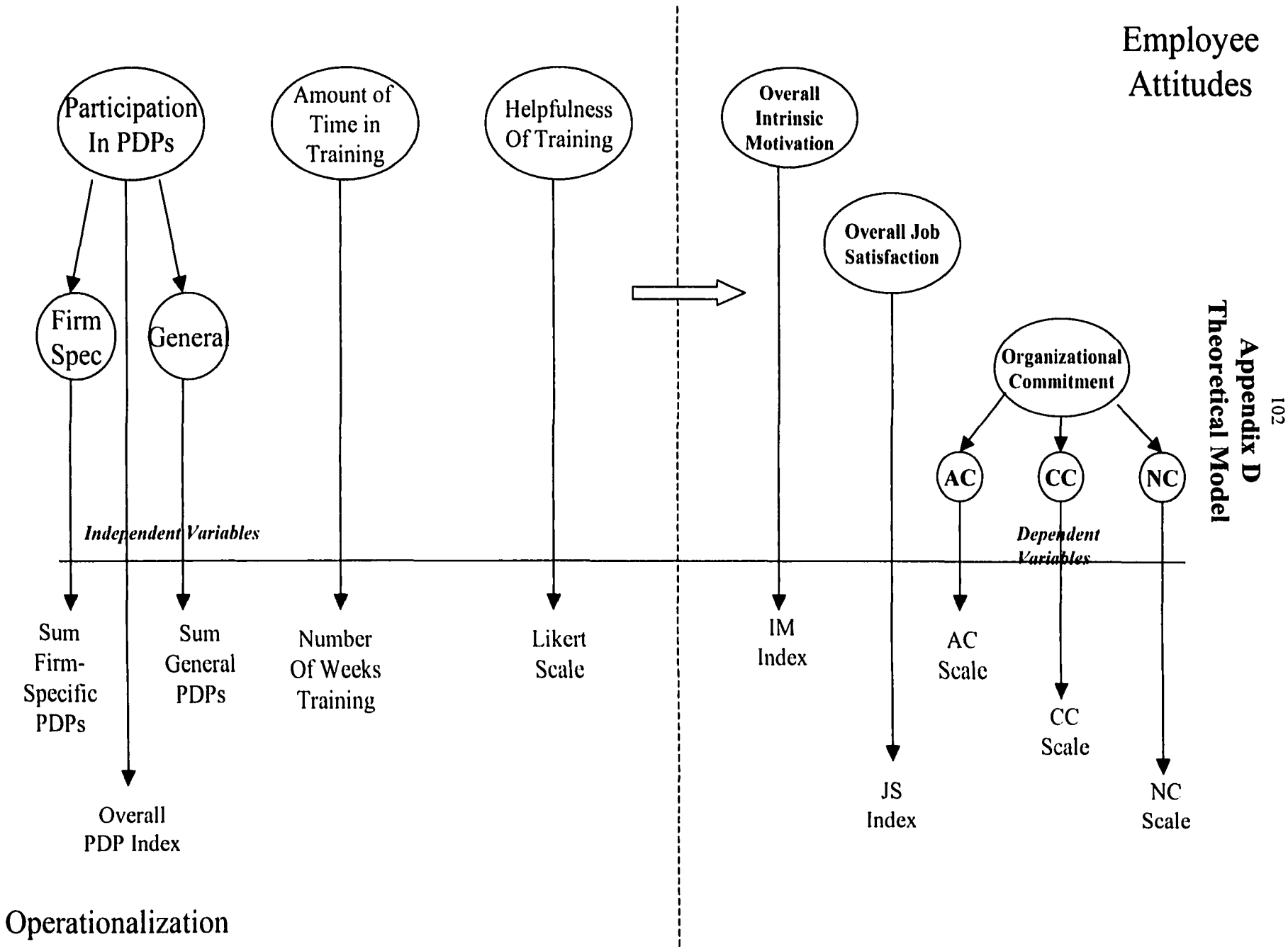
19. If you participated in one or more project management training programs (in-house or public) during the last year, how many weeks training in total did you receive?

	Please Check One Box
Less than 1 week	1
1 week	2
2 weeks	3
3 weeks	4
4 weeks	5
5 weeks	6
6 or more weeks	7

20. If you participated in one or more project management training programs (in-house or public) during the last year, please indicate the overall helpfulness of the training to your job function.
Please check one box below to indicate the overall helpfulness of the training.

Extremely Helpful	*Helpful*	*Neutral*	*Unhelpful*	*Extremely Unhelpful*
5	4	3	2	1

Thank you for taking the time to complete this questionnaire!



Appendix D
Theoretical Model

Appendix E
Profiles of Respondents and Organizations

Profile of Respondents

The respondents in this study were considered to be representative of the professional organization sampled as the following characteristics were noted in the data:

- Gender mix was 60% male and 40% female,
- Females were up to 10 years younger than the males in the sample. 50% of all male respondents were 46-55 years of age and 48% of all females were 36-45 years of age,
- Tenure with present employers was 10 years or less for 76% of all respondents,
- A well-educated group, with 90% of all respondents holding a Bachelor's degree or above. The male respondents reported a higher education level overall with 53% of all males holding a Master's degree in contrast to 34% of all females holding a Master's degree.

Profile of Project Management Exposure

To determine the comparability of the respondents to groups surveyed in other recent studies of groups of project managers, the following profile of project management "exposure" was derived from the demographic data:

- Approximately 50% of all respondents reported 10 years or less project management experience. The mean experience level of male respondents was up to 5 years more than for female respondents,
- Professional certification in project management was held by 38% of all respondents,

- The project responsibility level reported by 65% of all respondents was either project leader, project manager or program manager,
- For respondents participating in classroom training, 76% received one week or less of training in the past year.

Profile of Organizations Represented

To determine the comparability of the organizations to those in other studies, the characteristics of the organizations represented by this group of project managers are as follows:

- Primary business activity for 43% of employers was identified to be either Telecommunications or Information Systems,
- Most respondents (73%) worked in either the Information Systems or Project Office areas of their organizations,
- Most respondents (53%) worked for organizations with more than 10,000 employees, approximately 24% worked for medium-sized organizations (1,001 to 10,000 employees), and 22% worked for small organizations (1,000 or less employees).

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