

ABSTRACT

Title of Document: THE LEARNING COUPON: THE EFFECT OF PEER AND SUPERVISORS' PARTICIPATION ON INDIVIDUAL PARTICIPATION IN AN EMPLOYER-SPONSORED PROFESSIONAL DEVELOPMENT INITIATIVE.

Jill Dornetta Robinson,
Doctor of Philosophy, 2014

Directed By: Dennis M. Kivlighan Jr.,
Doctor of Philosophy
Department of Counseling and Personnel
Psychology

The learning coupon program was initiated by Federal Student Aid (FSA), a sub-agency of the U.S. Department of Education (ED), to promote employee participation in lifelong learning and career development. The initiative was introduced in 2002 in response to Executive Order No. 13,111 (1999) issued by former President Bill Clinton, which called for agencies to use technology to expand training opportunities for federal employees. The initiative has been operational since 2002 until present, however, leaders at FSA are troubled that employee participation has consistently remained at or below 50%.

Researchers theorize using human capital theory that individuals calculate the costs and benefits of training opportunities to determine whether participation in training is worthwhile. This framework effectively explains participation in terms of employees' intrinsic characteristics, such as personal motivation and outcome expectations. However, research indicates that the perceived value of training opportunities can be "relative to one's standing with similar or referent others" (Bamberger & Biron, 2007, p. 179) and that individual perceptions of the worth of rewards can be influenced by interaction and interdependent behavior with others (Friedland & Nadler, 1999). For example, researchers have hypothesized that, within interdependent social contexts, information about the other person's potential reward or outcome can affect individual tendencies to participate, cooperate, or compete with one another (Friedland & Nadler, 1999). Thus, researchers believe that employee participation and the perceptions of the utility of a training opportunity have to be analyzed within the structure of the social context in which the interactions unfold.

In this study, I hypothesized that—based on social learning theory—regarding interdependent behavior with others, namely peers and supervisors—individual employee participation in the learning coupon would influence individuals' decisions to participate in the learning coupon. Prior to the selection of research methods, I reviewed the relevant literature to identify the determinants of training participation and then used this information to construct the model and conceptual framework for this study.

Data on employee gender, supervisor, business unit, and status of participation from the year 2007–2008 represents the highest level of participation (49%) in the learning coupon initiative. Status of participation was coded as a yes–no variable to

indicate whether or not each employee and each supervisor participated in training during the 2007–2008 calendar year. Employee data was linked to supervisor data, which allowed me to identify the employees who shared a common supervisor. Based on this data, I created the “other participation” variable which was defined as the percentage of employees who share the same supervisor as the target employee who participated in the learning coupon.

The study revealed that other participation had a significant negative effect on individual participation. I also found that group size had a significant negative effect on individual participation. As the group size increased, the likelihood of individual participation decreased. Our model demonstrated that size mitigated the negative effect of other participation on individual participation. As group size increased from low to high, the negative effect of other participation decreased. Finally, the results indicated that supervisors’ participation did not have a statistically significant influence on individual decisions to participate in the learning coupon.

THE LEARNING COUPON: THE EFFECT OF PEER AND SUPERVISORS'
PARTICIPATION ON INDIVIDUAL PARTICIPATION IN AN EMPLOYER-
SPONSORED PROFESSIONAL DEVELOPMENT INITIATIVE.

By

Jill Dornetta Robinson

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Advisory Committee:

Dr. Dennis M. Kivlighan Jr., Ph.D., Chair

Dr. Robert Croninger

Dr. Carol Parham

Dr. Patricia Richardson

Dr. Noah Drezner

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Preface

Since 1990, FSA has faced many challenges related to its management and organization. For example, FSA's managers have complained of bureaucratic and budget constraints that have exacerbated tension and employee relations. Although on the surface employee relations have appeared healthy and stable, over time these management and organization problems have eroded the leadership's rapport with customers and employees. Many of FSA's problems have been attributed to its culture. According to Greg Woods, FSA's first chief operating officer in 1998, the prevailing mind-set amongst managers at that time was that employees "had become mechanical in dealing with the work they were performing" (Jackson, 2003, p.6). Woods felt that many employees viewed their jobs as simply processing loan and grant papers, rather than helping their customers "realize their dreams" (Jackson, 2003, p. 6).

In 2002, FSA implemented the learning coupon initiative to encourage growth and development through self-directed participation in lifelong learning activities. While some employees aggressively adopted the learning coupon initiative, others were more conservative and even intransigent toward its implementation. Participation in the learning coupon has consistently been at or below 50% since the initiative's inception. It is my hope that this dissertation will lead to a better understanding of the effects of peer and supervisors' participation on individual participation in the learning coupon at FSA.

Dedication

I dedicate this dissertation to my mother, a.k.a. Madre, whose unwavering confidence in me from start to finish has sustained me during the pursuit of this degree. Your steady love, encouragement, and support throughout the years have allowed me to be committed to this process. I also want to thank my father for his positive affirmation and prayers during this process. Finally, I thank my brother and his family for their encouragement and interest in exploring my ideas.

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Chapter 1: Introduction

Overview

In response to constantly changing demands over several decades for highly skilled workers, Congress and the President of the United States periodically approves legislation and allocates resources for federal agencies to help employees develop knowledge, skills and competencies. The outcome has typically translated into an array of continuous learning programs. Historically, participation in these learning programs has been driven by management. However, in recent years federal training policies have been enacted to encourage more self-directed rather than management-driven activities. This philosophical shift has created a unique set of stakeholders and a context of accountability that has compelled government officials and policymakers to collaborate with educational researchers to monitor and study performance, participation levels, and factors that influence participation levels in these learning programs.

One of the variables that could affect levels of participation in these continuous learning programs is leadership which might involve an individual's position within a group. For example, managers and supervisors who hold formal positions of legitimate authority might exercise a diverse set of skills to influence others and to accomplish goals (French & Ravens, 1959). However, individuals who set themselves apart from others in the group but still adhere to the groups' norm have been characterized by some scholars as peer leadership (Hollander, 1951). Relatively few studies have addressed effective skills and competencies needed for peer leadership where one or several members of the group are of equal status and ability (Baker, 2011). In the present study, I examined peer and supervisor effects on individual participation in a federally funded continuous

learning initiative called the learning coupon. The study focused on an aspect of peer leadership whereby it was assumed that a group of individuals were aware of their influence and positive interdependence as they interacted with each other to achieve mutual goals.

Participation was examined through the perceptual lens of social learning theory which asserts that human behavior is modeled and learned vicariously through observation. However, the implication under this framework is that the behaviors that are learned socially are clearly noticeable, discernible, readily apparent, and in some instances outright obvious. For example, moral judgments regarding the value of participation in training activities might not be so obvious to individual employee but such conclusions could be drawn based other factors that justify the peer or supervisors' action. Some supervisors may be more open about their participation in the learning coupon and may make their participatory status more obvious, while others may be less open and less inclined to proclaim participation in training activities.

In these circumstances and depending upon the individual employee's awareness and the supervisor's openness, the employee could draw conclusions about the supervisor's attitude toward training based upon that supervisor's participation or non-participation in training activities. In the final chapter of this dissertation I provide several practical and realistic scenarios that illustrate how behavior of reasonable, typical employees can result from feedback and responses to environmental stimuli. Awareness of these social and environmental effects on individual behavior can generate insight into how best to design and deliver continuous learning programs in the federal environment.

Problem statement

The focus of this dissertation was to determine whether peer and supervisor participation influenced individual participation in the learning coupon initiative, a federally funded employee training and development program at Federal Student Aid (FSA), a sub-agency of the U.S. Department of Education (ED). The learning coupon initiative began in 2002 as a \$500 stipend for employees to apply toward a self-directed work-related training activity. The initiative has been operational since 2002; however, leaders at FSA are concerned and perplexed that participation has consistently remained at or below 50%. Reports on the state of the federal workforce indicate that skills gaps within the federal government are emerging and on-going throughout the federal government (Goldenkoff & Jones, 2012). With less than half of an agency's employee population participating in continuous learning activities, it is reasonable that the federal government might expect the current skill gaps to widen, leaving it vulnerable and doubtful about its ability to accomplish its mission. Therefore, participation in training initiatives such as the learning coupon should be a cause of concern to a variety of stakeholders including government officials, educational policymakers and scholars for several reasons.

Significance of the study

First, government officials need to recognize the facts and research regarding the variables that have been known to affect training participation. Research links the probability of participation in training to educational attainment and skill intensity of the occupation (Bassanini, Booth, Brunello, DePaola, & Leuven, 2005). According to research, individuals who are "already disadvantaged in schooling and vocational

education” are more likely to not participate in learning later in life and “the more qualified individuals are, the more likely they are to return to learning later in life” (Backes-Gellner, Mure, & Tuor, 2007, p. 296). In other words, highly skilled workers appear to participate in continuous training more than low-skilled workers. It is important for policymakers and FSA leaders to be aware of this imbalance because it can disproportionately influence the cost-benefit analysis of training participation and ultimately affect the distribution of future training opportunities.

For educational policymakers and scholars, this study can be used to further the argument that training initiatives should be targeted to stimulate participation among low-skilled work populations since we know that less well-educated workers tend not to participate in training than well-educated workers, (Backes-Gellner et al., 2007). Targeting training to individuals at the lower end of the skills spectrum has been tried in many other nations, including Europe, Sweden, Japan, and the Netherlands, with varying levels of success (Keep, Mayhew, & Payne, 2006). Many of these nations view economic and educational goals as coterminous and have implemented lifelong learning policies to promote social and economic prosperity. While the U.S. does not currently have a national strategy for ensuring global competitiveness through continuous development amongst its workforce, the experience with the learning coupon at FSA might provide a good rationale for developing one.

Theoretical framework

Using Albert Bandura’s (1977) concept of self-efficacy in social learning theory and Mark Granovetter’s (2005) concept of “embeddedness” I hypothesize that interdependent behavior with others—namely, peers and supervisors—would influence

individual decisions to participate in the learning coupon. Research indicates that an individual's motivation to participate in training activities can be influenced by his or her self-efficacy and belief about whether he or she can attain his or her goals or tasks (Goldstein & Ford, 2002). Researchers have also found that levels of motivation can also be affected by the behavior and beliefs of others including peers and supervisors (Guerrero & Sire, 2001). Thus, researchers believe that employee participation and the perceptions of the utility of a training opportunity have to be analyzed within the structure of the social context in which the interactions unfold (Friedland & Nadler, 1999).

Many researchers have examined employee participation in training and development through the lens of human capital theory which posits that individuals calculate the costs and benefits of training opportunities to determine whether participation in training is worthwhile. This framework effectively explains participation in terms of the intrinsic characteristics of the employee, such as personal motivation and outcome expectations. However, research indicates that the perceived value of training opportunities can be "relative to one's standing with similar or referent others" (Bamberger & Biron, 2007, p.179). Therefore, the advantage of relying upon the social learning approach to understand individual employee participation is that it allows researchers to analyze how individuals might leverage their interconnectedness to maximize their own outcome, the other's outcome, or the difference between the two outcomes (Friedland & Nadler, 1999) within a given context. Thus, the social learning perspective provides a more detailed understanding of the complexities and intricacies of individual employee participation in training than theories that attribute motivation to an

individual's intrinsic character. The social learning theory also allows researchers to view educational opportunities and choice not merely as a function of individual preferences but as a function of environmental favorability. Environmental favorability refers to the extent to which the situation or contextual factors determine individual behavior.

Background

This section provides an overview of the structure and framework of the federal government training system that provides guidance and direction to agencies in training and development of federal employees. More specifically, this framework consists of training laws, regulations, executive orders, memorandums, and directives that define the roles, responsibilities, and relationships of and between key players involved in managing employee development. Additionally, this section discusses the origin of the learning coupon, an instrument initiated by Federal Student Aid (FSA), a sub-agency of the U.S. Department of Education (ED), to promote participation in lifelong learning and career development opportunities.

Training policy framework. Congress—a top decision-making body in the U.S., along with the president and other executive bodies—authorizes and oversees spending related to federal employee development. The policies listed in Table 1 reflect the ideals and desired outcomes of Congress, the president, and the heads of each agency (from the late 1800s to the early 2000s,) in regard to training and employee development.

Table 1. Federal Training Policy Framework

Policy	Summary
Civil Service Act of 1883	Established the merit system of hiring federal employees.
Civil Service Reform Act of 1978	Reorganized the civil service commission.
Government Employees Training Act of 1958 (GETA)	Defined agency responsibility for employee development.
Executive Order No. 11,348 (1967)	Re-affirmed GETA.
Government Performance and Results Act of 1958	Required employee development to be “mission sensitive.”
Homeland Security Act of 2002	Established the Chief Human Capital Officers position.
Federal Workforce Restructuring Act of 1994	Permitted executive officers to shop externally for training.
Foreign Assistance Act of 1961	Authorized training to personnel of foreign countries.
U.S. Information and Educational Exchange Act of 1948	Allowed personnel from other countries to receive training.
Intergovernmental Personnel Act of 1970	Allowed OPM training for state and local employees.
Executive Order No. 12,862 (1993)	Established service standards for working with the public.
Executive Order No. 12,871 (1993)	Encouraged partnerships to improve operations.
Executive Order No. 13,203 (2001)	Rescinded Executive Order 12871.
Treasury and Government Appropriations Act of 2000	Prohibited use of funds for offensive training.
Fair Labor Standards Act of 1938	Prohibited payment of salary while employee is in training.
Executive Order No. 13,160 (2000)	Prohibited discrimination in delivery of training.
Executive Order No. 11,246 (1965)	Prohibited contractors from discriminatory practices.
National Performance Review	Implemented substantial reforms to GETA & OPM.
Executive Order No. 13,111 (1999)	Encouraged expansion of training opportunities.
Higher Education Act of 1998	Designated FSA as a performance-based organization.
Executive Order No. 12,107 (1978)	Established OPM, FLRA, and EEOC.

The cornerstone of the employee development policy framework is the Government Employee Training Act of 1958, which charges the heads of each federal agency with developing and coordinating training and development activities for its employees. The policy states that,

in order to assist in achieving an agency's mission and performance goals by improving employee and organizational performance, the head of each agency, in conformity with this chapter, shall establish, operate, maintain, and evaluate a program or programs, and a plan or plans there under, for the training of employees in or under the agency by, in, and through Government facilities and non-Government facilities” (5 U.S.C. § 4103).

Training is defined as “a planned, prepared, and coordinated program, course, curriculum, subject, system, or routine of instruction or education” (5 U.S.C. § 4101).

Former President Lyndon B. Johnson delegated additional responsibility for training to

the Office of Personnel Management (OPM), creating a dual system and structure of responsibility for training and employee development between the heads of agencies and OPM. This dual structure of training, depicted in Figure 1.1, gives OPM policy-making and oversight responsibilities for employee development in the federal government as well as the authority for each human resources department within each agency to develop and provide training and guidance to its employees.

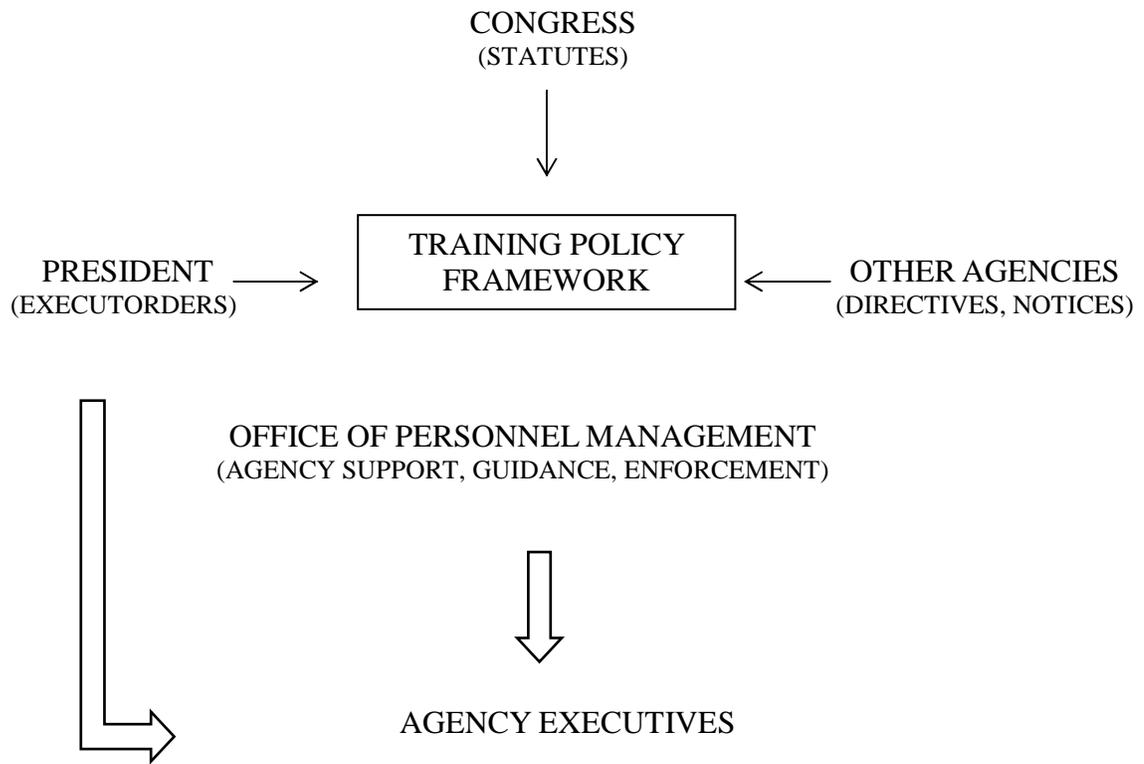


Figure 1.1. The dual structure and system for federal training.

One aspect of this structure is centralized under the direction of the OPM, specifically through the Division for Strategic Human Resources Policy. This division houses several centers for policy on areas such as talent and capacity, leadership, and workforce planning (Clardy, 2008). The second aspect of this structure is a decentralized

network of employee training and development offices at each department or agency that each have their own dedicated resources. Specifically, the offices within each department and agency are authorized and expected to develop and provide training to employees in their specific areas of responsibility (Clardy, 2008).

Several past presidents have implemented policies to change this dual structure and system for federal training. The most recent reforms were implemented by the Clinton administration under the National Performance Review (NPR) of 1993. The structural changes under this policy reduced OPM's work staff by 50% and delegated training and development authorities to line departments. All of these policy actions immediately preceded the implementation of the learning coupon and are discussed in the next chapter. Among other policies that have made substantial changes to this system are Executive Order No. 12,107 (1978), the Civil Service Reform Act of 1978, and the Civil Service Act of 1883. I discuss these policies next.

Policies that reformed the structure of federal training. Former President Jimmy Carter's Executive Order No. 12,107 (1978), "Federal Civil Service Reorganization" reaffirmed organizational changes that were enacted by Congress through the Civil Service Reform Act of 1978. The Civil Service Reform Act of 1978 began with a proposal to reorganize the Civil Service Commission, which had been established by Congress and President Ulysses Grant in 1883. Prior to the Civil Service Act of 1883, appointments in the Civil Service Commission relied heavily upon political patronage and partisan behavior instead of personal competence and qualifications. The Civil Service Reform Act that was established in 1883 stipulated that government jobs should be awarded on the basis of merit. From 1883 on, the Civil Service Commission

functioned as an agency of the executive branch whose primary concern was to establish a merit system under which appointments to federal jobs were made based on the candidate's qualifications rather than political affiliation. Carter justified his proposal to restructure the civil service commission by stating that "managing the federal government and protecting the rights of federal employees were two inherently conflicting responsibilities, neither of which the government had done well" (United States Government Printing Office, 1978, p. 19).

Carter proposed creating new institutions, one of which was OPM, and splitting management functions between OPM and the Merit Systems Protection Board (MSPB), an independent quasi-judicial agency established to protect federal employees against abuses by agency management. Other functions were placed under the jurisdiction of the Equal Employment Opportunity Commission (EEOC), the Federal Labor Relations Authority (FLRA), and the Office of Special Counsel (OSC). All of these structural changes were implemented under Executive Order No. 12,107 (1978) to clarify agency roles and responsibilities for managing employee development. Several other policies define the duties and responsibilities of agency executives. For example, the Homeland Security Act of 2002 added Chief Human Capital Officers to the list of agency heads responsible for managing a high-quality productive workforce in accordance with merit system principles. Also, under the Federal Workforce Restructuring Act of 1994, agency executives were permitted to "shop on the external market" for training resources (5 U.S.C. § 5597). Additional policies that govern training relationships include the Foreign Assistance Act of 1961, the U.S. Information and Educational Exchange Act of 1948, and the Intergovernmental Personnel Act of 1970. These policies permitted government

employees from international agencies, personnel from other countries, and state/local employees to participate in training offered through vendors, OPM-provided courses, and training services offered by other government agencies.

The policy framework also establishes guidelines for how training programs are to be administered. For example, Executive Order No. 12,862 (1993) requires agencies that provide significant services to the public to develop customer service plans that reflect the services desired of the agency, their levels of satisfaction with the services received, and employees' ideas about how to meet customers' needs. Agencies are encouraged to provide training on these "best in business" standards. Another example of policy guiding business practice can be seen with Executive Order No. 12,871 (1993), which encouraged agency heads to enlist the involvement of union representatives to resolve internal disputes; however this directive was rescinded through Executive Order No. 13,203 (2001).

A few policies in the framework restrict training activities. For example, the Treasury and General Government Appropriations Act of 2000 prohibits the use of appropriated funds for training programs that are offensive or designed to change a participant's personal values or lifestyle outside of the workplace. Another example is the Ryan White CARE Amendments of 1996, which prohibits mandatory HIV/AIDS training unless such training would be necessary for job-related health and safety purposes. Finally, policies in the framework also govern how training is to be delivered. For example, discrimination in the provision of training for federal employees is prohibited under Executive Order No. 13,160 (2000). Contractors and subcontractors are prohibited from discriminating in their workforces under Executive Order No. 11,246

(1965). The Fair Labor Standards Act of 1974 prohibits agencies from paying employees for overtime and holiday pay while they are assigned to training.

All of the previously referenced policies were established by Congress and former presidents to help achieve common goals and purposes for employee development. Some policies define roles, duties, and relationships among key agencies while others are aimed at protecting employees from discriminatory training practices. However, beneath the policy framework lies a substantial process and story of social and economic transformation driven by the individual and social values of civil society. It is within this wider context of social change that training opportunities and the decision to participate must be understood. The specific set of challenges and conditions under which the learning coupon evolved are discussed in the paragraphs below.

Learning coupon. The learning coupon initiative was introduced in 2002 in response to Executive Order No. 13,111 (1999) issued by former President Bill Clinton and called for agencies to use technology to expand training opportunities for federal employees. However, the learning coupon was part of a broader set of human capital experiments with workplace transformation strategies implemented to move employees away from traditional command and control styles of management (where supervisors directed the training and development) to empowerment models of leadership. In this study I examined participation rates for fiscal year 2007–2008 because this period has seen the highest level of participation to date.

Definitions

Below is a list of terms and their definitions that are used in this study.

Career Zone: The career development and counseling center of FSA (2003–2004) that provided guidance and direction to employees interested in gaining new skills to

transition into new career paths.

Environmental determinants: Legislation, policies, and regulations that provide the context in which an individual makes decisions to participate (or not) in the learning coupon initiative at FSA.

Employee satisfaction: Employee satisfaction refers to the extent to which employees can fulfill their professional goals at work.

Equal Employment Opportunity Commission (EEOC): The Equal Employment Opportunity Commission (EEOC) is the federal agency charged with eliminating discrimination based on race, color, religion, sex, national origin, disability, or age, in all terms and conditions of employment. The EEOC oversees compliance and enforcement activities relating to equal employment opportunity among federal employees and applicants, including discrimination against individuals with disabilities.

Executive Order No. 13,111 (1999): This is the authority under which former President Bill Clinton allotted resources for the establishment of professional development initiatives to be developed for federal agencies.

Federal Employee Viewpoint Survey (FEVS): This is an annual survey administered by the Office of Personnel Management to measure federal employees' satisfaction within key conditions of an agency. Some of the items on the survey include satisfaction within individual work units, satisfaction with relationships with colleagues and supervisors, and overall satisfaction with the agency.

Federal Labor Relations Authority (FLRA): The Federal Labor Relations Authority adjudicates disputes arising under the Civil Service Reform Act; the committee is responsible for deciding cases regarding the negotiability of collective bargaining

agreement proposals, exceptions to grievance arbitration awards, and appeals concerning unfair labor practices and representation petitions.

Federal Student Aid (FSA): A sub-agency of the U.S. Department of Education (ED), with a staff of 1200 in 10 cities in addition to its Washington, D.C., headquarters. This sub-agency provides student financial assistance in the form of grants, loans, and work-study funds. FSA also develops, distributes, and processes the Free Application for Federal Student Aid (FAFSA), the key tool used to qualify students for all federal student aid. The mission of FSA is to ensure that all eligible Americans benefit from federal financial assistance, which could include grants, loans, and work-study programs. This sub-agency is the location and primary source of data and information used in this research study.

FSA Skills Catalog: A directory of skills and competencies required to perform job responsibilities at all levels within FSA. Developed in 2000, this resource describes the primary functions, skills, and knowledge required to carry out operations in each business unit.

FSA University: FSA's organizational structure developed in 2003 that centralized formal training and development to better emphasize the importance of continuous education and employee development. This organization offered competency-based training needed for each business unit. Highly technical and expert-based content was contracted to training vendors outside of the agency and sometimes outside of the federal government.

Government Accounting Office (GAO): The investigative arm of the legislative branch of the U.S. government responsible for improving the accountability, efficacy, and efficiency of federal agencies.

Government Employee Training Act of 1958 (GETA): The cornerstone of the employee development policy framework is the Government Employee Training Act of 1958. The GETA policy charges the heads of each federal agency with developing and coordinating training and development activities for its employees.

Higher Education Act of 1998: The legislation in which Congress designated FSA as a performance-based organization.

Hierarchical linear modeling (HLM): A statistical technique for analyzing variances in the outcome variables when the predictor variables are at varying hierarchical levels. HLM investigates relationships within and between hierarchical levels of grouped data, thereby making it more efficient in accounting for variance among variables at different levels than other existing analyses.

Individual factors: Intrinsic and extrinsic factors that influence training participation. Examples include age, gender, level of education, self-efficacy, motivation, and learning attitudes.

Individual learning accounts (ILA): An account managed by employees similar to a bank account that pays for training and development. This initiative was developed under the authority of former President Clinton's Executive Order No. 13,111 (1999) and was originally intended to improve training opportunities in technology.

Learning coupon: This is the workforce development incentive offered by FSA's top-level management to encourage professional development. Initially this stipend was \$500; currently it is \$800.

Motivation: The choice employees make as to what experiences or goals they will approach or avoid and the degree of effort they will exert in that respect (Crookes & Schmidt, 1991).

Merit Systems Protection Board (MSPB): An independent quasi-judicial agency established to protect federal employees against abuses by agency management.

National Performance Review (NPR) of 1993: The National Performance Review began on March 3, 1993, when President Clinton announced a six-month review of the federal government. The objective of this review was to identify ways in which the government could operate more efficiently. The president asked each Cabinet secretary to organize a "reinvention team" to work from within each agency and to create "reinvention laboratories" where experiments in new ways of doing business could begin immediately.

Office of Personnel Management (OPM): An independent entity that acts as the human resources arm to federal agencies. This office conducts surveys to measure the success of human capital strategies, professional development, and career advancement opportunities for federal employees.

Office of Special Counsel (OSC): The Office of Special Counsel is an independent federal investigative and prosecutorial agency that investigates activities prohibited by the civil-service laws, rules, and regulations. The OSC's legislative authority comes from four federal statutes: the Civil Service Reform Act, the Whistleblower Protection

Act, the Hatch Act, and the Uniformed Services Employment & Reemployment Rights Act (USERRA).

Participation: The process by which an individual becomes aware of a need for professional development and takes action to fulfill it.

Peer: Peer in this study refers to employees who share the same supervisor.

Performance-based organization (PBO): A discrete management unit with strong incentives to manage for results. It commits to specific measurable goals with targets for improved performance. In exchange, the management unit is granted managerial flexibilities to achieve these targets.

Personal determinants: Characteristics of the individual that influence behavior, such as self-efficacy, motivation, age, gender, and level of education.

Presidential task force on technology: A temporary body created in 1999 as a result of Executive Order No. 13,111 (1999) and tasked specifically with developing options and recommendations for establishing and implementing ILAs. Today, only a few agencies use ILAs as recommended by this group.

Professional development: An organization's planned effort to help employees acquire job-related knowledge, skills, and abilities with the goal of applying these competencies in their current job or in a future job.

Psychological contract: A concept developed by organizational scholar Denise Rousseau that represents the mutual beliefs, perceptions, and informal obligations between an employer and an employee. The psychological contract sets the dynamics for the relationship and defines the detailed practicality of the work to be done. The

psychological contract is distinguishable from the formal written contract of employment which, for the most part, only identifies mutual duties and responsibilities.

Reinventing government: “The fundamental transformation of public systems and organizations to create dramatic increases in their effectiveness, efficiency, adaptability, and capacity to innovate. This transformation is accomplished by changing their purpose, incentives, accountability, power structure, and culture” (Osborne & Plastrik, 1997, p. 13–14).

Self-efficacy: An individual’s belief that he or she can attain his or her goals or tasks.

Social contract: An agreement for mutual benefit between an individual or group and the government or community as a whole.

Social determinants: In this study, social determinants refer to the social relationships in a workplace that can affect individual learning behavior—namely, peers’ and supervisors’ participation.

Social motive: A social motive refers to how individuals leverage their interconnectedness to maximize their own outcome, the other’s outcome, the sum of these outcomes, or the difference between the two outcomes.

Supervisors’ participation: The precedent set by a supervisor’s past action to engage or not engage in training.

Training and Development Center: The training center with ED that provided a variety of learning activities, including workshops, seminars, conferences, and courses in which FSA staff could participate.

U.S. Bureau of Labor Statistics (BLS): The principal federal agency within the U.S. Department of Labor; it is responsible for measuring and reporting labor market activity,

working conditions, and price changes in the economy. Its mission is to collect, analyze, and disseminate essential economic information to support public and private decision making.

U.S. Department of Education (ED): The parent organization of FSA. This federal agency has more than 5,000 employees yet is among the smallest of federal agencies. The mission of ED is to “promote student achievement and preparation for global competitiveness by fostering educational excellence and ensuring equal access” (U.S. Department of Education, 2013).

Organization of this Study

This dissertation is organized as follows. Chapter 1 includes an overview of the research topic, states the research problem, discusses the theoretical framework, and explains the policy framework that governs training and employee development activities in the federal setting. Chapter 1 also provides background information on the learning coupon and FSA, definitions, and ends with comments about the organization of this dissertation. Chapter 2 discusses the challenges and contextual factors within the work environment at FSA during the time when the learning coupon was conceived and implemented. I consider the potential effects of downsizing, restructuring, and new technology on employee participation in the learning coupon. I conclude with a reiteration of the problem statement and a summary of FSA’s progress toward promoting participation in employee development activities. Chapter 3 reviews the literature regarding employee participation in development activities as well as the personal, social, and environmental factors that affect it. Chapter 4 explains the methodology and procedure for conducting this study. Chapter 5 presents the results of the study. Chapter

6 provides a discussion of the findings and implications, identifies limitations of the study, and proposes recommendations for further research.

Chapter 2: Federal Student Aid

In this chapter I focus directly on the impact of the National Performance Review (NPR) initiative of 1993 on social relationships that was implemented by the Clinton administration to improve the training environment of the federal government. This purpose of focusing on this particular policy initiative is to illustrate how the policy context can shape individual perceptions of training and ultimately training behavior. This chapter demonstrates that perception of a training environment can be subject to the structures in which employees operate. Thus, an individual employee's response to an opportunity to participate in training activities might depend on the social or political context in which information and interactions unfold. First I discuss the NPR initiative of 1993 and then I discuss Executive Order 13111.

Reinventing Government

Shortly after his inauguration as president of the United States in March 1993, William J. Clinton introduced the NPR initiative to improve the performance of the federal government. NPR was the federal government's implementation of the concept of "reinventing government." Clinton was greatly inspired by David Osborne and Ted Gaebler's 1992 book, *Reinventing Government, How the Entrepreneurial Spirit is Transforming the Public Sector*. He used the concept of reinventing government to suggest that, in addition to reform, the citizenry needed a basic restructuring of the way it thinks about government. The basic concepts of reinvention are: 1) the government should provide a framework for the operation of programs rather than actually operating programs itself; 2) the government should focus on customer service; 3) the government should decentralize and "de-layer"—that is, address problems from the lowest level of

government feasible; 4) public agencies should incorporate entrepreneurialism and adopt a market orientation wherever possible; and 5) the government should minimize duplication and waste (Osborne & Gaebler, 1992). Within the framework of reinventing government, the Clinton administration also made substantial reforms to human resource and personnel systems, including training and employee development. These actions included (1) eliminating constraints on internal training regulations; (2) abolishing the 1993 federal personnel manual that provided agency heads with guidance on implementing training laws; and (3) reducing OPM's work staff by 50%.

Judith Lombard (2003), a retired human resource management consultant to OPM, explained that, "while these reforms were intended to make training a more flexible management tool by giving managers more authority for employee development, many changes resulted in unintended negative consequences" (p. 1114). For example, the abolishment of the federal personnel manual meant that "guidance to agency personnel specialists, managers, and employees was unclear, contradictory, and often non-existent" (Lombard, 2003, p. 1114). Lombard (2003) continued by saying that "considerable confusion ensued and, throughout the executive branch, the reasonably uniform administration of training disappeared" (p. 1115). In addition, Lombard (2003) explained that "OPM stopped collecting information about agency training budgets and activities and publishing reports on government training activities in 1993...training became tracked in department systems [that were] unable to communicate with one another" (p. 1115). By 2000, "agencies were unable to tell whom they had trained or why; how much it spent; and what contribution training made to improving individual or organizational performance" (Lombard, 2003, p. 1116). At the end of seven years of

reinvention, employees were confused and dissatisfied with training. Executive Order No. 13,111 (1999), which I discuss next, was issued toward the tail end of the reinventing government initiative.

Executive Order No. 13,111

When reinvention efforts ended in 2000, many managers and employees complained that they had inherited responsibilities for which they had not received adequate training and preparation (Lombard, 2003). Others emerged from these years believing that the purpose of government training was unclear and inconsistent with training law (Lombard, 2003). Feelings of confusion were exacerbated by pressure from organized labor and the increasing use of technology to enhance job performance. In 1999, one year before reinvention efforts ceased, Clinton issued Executive Order No. 13,111 (1999) to encourage the use of technology to improve training opportunities for federal employees. The order reads:

Advances in technology and increased skills needs are changing the workplace at an ever increasing rate. These advances can make Federal employees more productive and provide improved service to our customers, the American taxpayers. We need to ensure that we continue to train Federal employees to take full advantage of these technological advances and to acquire the skills and learning needed to succeed in a changing workplace. A coordinated Federal effort is needed to provide flexible training opportunities to employees and to explore how Federal training programs, initiatives, and policies can better support lifelong learning through the use of learning technology. To help us meet these goals, I am creating a task force on Federal training technology (The Presidential Task Force on Federal Learning Technology,) directing Federal agencies to take certain steps to enhance employees' training opportunities through the use of training technology, and an advisory committee on the use of training technology, which also will explore options for financing the training and post-secondary education needed to upgrade skills and gain new knowledge. (Exec. Order No. 13,111, 1999)

The Presidential Task Force recommended establishing individual learning accounts (ILAs) for federal employees. Following the emergence of the internet, ILAs were introduced by the 1997 Labour Party manifesto to support the uptake of information technology skills among the British workforce. ILAs function like bank accounts for training and developing employees. Through a system of tax incentives, individuals and employers are able to contribute to the ILA. The Presidential Task Force that was established to investigate the possibility of ILAs for federal employees found that very few models of ILA programs existed in the U.S. public or private sector. Consequently, instead of providing the president with a detailed plan for how the ILA pilot program should work, the task force provided agencies with a generally agreed-upon dollar amount to be applied toward participation in a learning activity. FSA did not participate in the ILA pilot program, but rather developed its own version of the ILA called the learning coupon, which I discuss later in this chapter.

During the reinventing government timeframe Congress also amended the Higher Education Act to designate FSA as a performance-based organization (PBO) within ED. PBO's were patterned after the British public service reform efforts of the late 1980s. FSA's status as a PBO released it from many of the traditional constraints associated with a government agency, such as limited spending and ever-increasing budget deficits. In exchange for clear and measurable performance goals and objectives, FSA was granted discretion to operate more like a private sector corporation, having more control over its budget, personnel decisions, and procurement. As discussed later in this chapter, it seems that neither the PBO legislation nor the learning coupon (the U.S. version of the ILA) had much success in resolving FSA's human capital issues. However, before I discuss the

learning coupon, I first examine how restructuring can affect employees' perception and participation in development activities.

Effects of Restructuring

For many agencies, “reinvention” resulted in confusion, distrust, and above all erosion in the social contract between the government and its workforce (Lombard, 2003). Philosopher Jean-Jacques Rousseau described the social contract as a contract between government and society that is based upon a shared set of obligations (Wraight, 2009). Those obligations include “stable employment, loyalty to the organization, training and development, and willingness to serve the company as a committed employee as well as the obligation of the firm to spend resources on the learning and development of each employee” (Rousseau, 1989, p. 121). In a similar vein, organizational researcher Edgar Schein (1980) explained that a psychological contract, defined as “an unwritten set of expectations between managers and employees,” determines behavior in organizations (p. 154). Researchers have concluded that “these expectations are based on trust and if broken, can lead to anger and resentment, perhaps forcing the individual to consider leaving the organization” (Makin, Cooper, & Cox, 1996, p. 387).

Clinton's reinventing government initiative affected operations at almost all of the federal agencies, including FSA. Research indicates that restructuring can undermine individual perceptions of ability and self-esteem (Clunan, 2009; Payton, 2000). Perhaps the social disruption caused by the reinventing government reforms was so drastic that good faith promises and provisions offered under Executive Order No. 13,111 were no longer credible. That is, to a fraction of the workforce, maybe the government was no

longer a reliable partner with whom a contractual exchange could be made. Thus, participation in any initiative for employee development would have been unlikely. The target audience and social motives behind this executive order remain elusive. Next, I provide the background and history of FSA.

Background and Context of FSA

FSA, located in Washington, D.C., is the largest sub-agency under ED. Through this office and several regional offices employees work with ED to award approximately \$150 billion a year in grants, work-study funds, and low-interest loans to more than 14 million students. In 1990, FSA was included on the U.S. General Accounting Office's (GAO) high-risk list as a result of allegations of fraud, waste, abuse, and mismanagement.¹ The GAO is the investigative arm of the legislative branch of the U.S. government responsible for improving accountability. Therefore, improvement became necessary to ensure that missions were not compromised and that taxpayer money was well spent. Over the years, FSA officials have focused heavily on its human capital and performance management issues by experimenting with several initiatives to promote continuous employee development. Some of those programs include FSA University, Career Zone, and ED's Training and Development Center (TDC). Each will be discussed in the following subsections. I discuss the learning coupon last because it is FSA's most enduring employee development initiative.

FSA university. FSA University was a corporate university model of continuous education and employee development. In traditional corporate university models of training, the universities determine individual needs, develop training, and distribute the

¹ U.S. General Accounting Office, High-Risk Series: Student Financial Aid, GAO/HR-95-10 (Washington, D.C.: Feb. 1, 1995)

opportunities in the form of a skills catalog (El-Tannir, 2002). However, by 2003, the corporate university model of training opportunities was determined by more imminent business goals, such as increased productivity, employee engagement, and talent management. Training activities were specific to the competencies needed in each business unit, and the development of course content was subcontracted to experts or specialists outside of FSA. Coaching and leadership-training services were available to managers. FSA University also maintained a computer lab that was intended to promote access and participation in development activities.

Career zone. Also in 2003, FSA contracted the services of two full-time career counselors, who began providing individualized career-counseling sessions and career-development courses. This program was intended to provide guidance and direction to employees who wanted to gain new skills and knowledge for the sole purpose of transitioning to other employment positions. The Career Zone emphasized to employees the importance of individual development plans (IDPs).

Education's training and development center. In addition to FSA's career development programs, ED also provided an array of in-house professional development learning activities, including workshops, seminars, conferences, and courses in which FSA staff could participate. Workshops included contract administration, time management, basic writing, email etiquette, and public speaking. Seminars were offered to develop skills in relationship management, auditing, customer service, problem solving, social networking, resume writing, conflict management, and grant writing. Course offerings included basic skill development in Excel, MS Word, PowerPoint, and many other special software packages. The TDC also offered training in the operation of

specialized databases, leadership, and project management. These learning activities were offered multiple times a year.

Despite the activities chronicled in the preceding paragraphs, FSA continues to struggle in its search for effective ways to influence employee participation in the many professional development opportunities it offers. One of the most popular employee development initiatives is the learning coupon, which I discuss next.

Learning Coupon

As previously explained, the Presidential Task Force that was established under Executive Order No. 13,111 (1999) recommended the use of ILAs for federal employees. In 2000, 13 U.S. federal agencies piloted an ILA program, hoping to encourage employee development within the federal government.² The 2003 report “Individual Learning Account Pilot” showed a positive response to the pilot program, which resulted in several similar learning initiatives across agencies, one of which is the learning coupon. The learning coupon is a tool created by FSA to encourage participation in lifelong learning and career development. This initiative promotes employee-led demands for training, which means that employees are empowered to make decisions about their developmental needs and to pursue learning opportunities accordingly. I will discuss the learning coupon in more detail after I discuss the lessons learned from the ILA pilot program.

Lessons from the ILA Pilot Program

An evaluation of the ILA pilot program suggested that alignment of policy, procedure, and personnel was a complicated endeavor. OPM officials outlined five lessons learned as a result of the implementation of the ILA pilot project. Lesson five is

² FSA was not a part of the ILA pilot program.

perhaps the most relevant recommendation for consideration in this study. It recommended that the OPM use social networking and networks to promote the use of ILAs. This recommendation is important because it is consistent with recent empirical work that personal and social factors can impact training and development participation (Bandiera, Barankay & Rasul, 2007; Falk & Ichino, 2006; Ichino & Maggi, 2000; Mas & Moretti, 2009). Furthermore, the lesson related to a change in culture resonates with our hypotheses that social factors could influence participation in the learning coupon. The next section discusses the learning coupon in greater detail.

Learning Coupon Participation Process

In 2002, FSA officials began offering employees a \$500 learning incentive in the form of the learning coupon to apply toward professional development activities. This amount proved to be insufficient based on employees' feedback. Therefore, management increased the amount to \$800 to address this concern and to encourage more employees to participate in continuous development activities. The process of participating in the learning coupon involved action by the employee and the employee's supervisor. The desire to participate in the learning coupon begins with the submission of a formal request to open a learning coupon account with one's supervisor and the learning coupon administrator. The supervisor approves or rejects the request for training. Once the supervisor makes the decision, the learning coupon administrator receives an email notice regarding the status of the request. Upon approval of the request, the learning coupon administrator consults with the employee to purchase or acquire the educational product. As a process outlined on paper, the decision to participate in the learning coupon

initiative seemed straightforward. Nonetheless, FSA has not been able to determine why not more than 50% of the workforce chooses to utilize this employee benefit.

Summary Problem Statement

FSA officials are concerned and perplexed that participation rates in FSA's learning coupon initiative have consistently been at or lower than 50%. This is a problem because low employee participation rates in training can create significant knowledge and skill gaps within the agency, thereby leaving it vulnerable and unable to accomplish its mission. When half of a federal agency does not take advantage of the opportunity to learn new knowledge and skills through initiatives such as the learning coupon, the federal government cannot realistically meet the demands of the 21st century. Despite extensive knowledge in the field of professional development about factors that influence individual participation, FSA officials appear to be unaware of the nature of specific research that demonstrates the correlations between employee motivation and training participation.

This chapter has explained why the social context should be modeled statistically to understand patterns of participation in FSA's learning coupon initiative. I have illustrated how personal experiences with reinventing government can affect individual and shared perceptions of trust and trustworthiness of and among federal employees. The ability to make exchanges and agreements with others requires credibility. In the absence of such trust and credibility, the social contract continues to erode. In the next chapter, I introduce the conceptual framework and discuss the theoretical perspectives that contributed to its development.

Chapter 3: Literature Review

Terms such as *variables*, *factors*, *determinants*, and *antecedents* have been used interchangeably throughout the literature, making it difficult to interpret the findings on employee participation in learning activities. Therefore, I offer the following observations about my review to ensure that my discussion of the literature on employee participation is as clear as possible: (1) Employee participation in learning activities can be conditioned or unconditioned by characteristics of the individual person, his or her social group, and his or her environment. For example, training motivation can vary based on self-efficacy or the extent to which an individual believes that he or she can perform a specific task. Self-efficacy is considered a personal determinant of employee participation. In this instance, self-efficacy is also an antecedent (i.e., pre-condition) of motivation. As such, employee participation depends on motivation, and motivation depends on self-efficacy. (2) These characteristics can be classified as stable or malleable. For example, high levels of self-efficacy affect motivation positively and vice versa. (3) Finally, the need for more exact specification of these terms is made clear through my research study and the use of the multidimensional model of employee participation. I will discuss both in more detail in the following paragraphs.

My review is organized into the following three sections: personal, social, and environmental determinants. The first section addresses personal determinants of employee participation and includes motivation (and antecedents of motivation), age, level of education, gender, and intention. Intention refers to “the degree to which a person has formulated conscious plans to perform some specific future behavior” (Warshaw & Davis, 1985, p. 214). Using the theory of reasoned action and the theory of

planned behavior, I explain how motivation and intention interact to influence behavior. These two theories serve as the foundation of more complex models, such as the multidimensional model of employee development—a model that also will be discussed. In addition to viewing personal determinants through the lens of these frameworks, I examine the literature to understand the social determinants of employee participation. Human interactions through observation and modeling behaviors will be explained using Albert Bandura’s theory of social learning. I also explore the research on the effects of group size, subjective norms, and social relationships on employee participation. Research findings related to these determinants are important for this study because these determinants serve as the building blocks for my own conceptual framework for understanding employee participation in the learning coupon at FSA. Finally, I review environmental effects such as union involvement and policy developments on employee participation.

Motivation as a Personal Determinant

Literature on workplace training has recognized training motivation as an important predictor for training participation (Mathieu, Tannenbaum, & Salas 1992). Motivation refers to “the choice employees make regarding what experiences or goals they will approach or avoid and the degree of effort they will exert in that respect” (Keller, 1983, p. 389). Researchers believe that employee participation in training results from motivation (Guay et al., 2010). In the following sections, I explain how individual expectations, learning orientation, learning attitudes, and past learning experiences affect motivation and ultimately employee participation.

Expectancy theory and learning orientation. According to Vroom (1964), motivation is made up of three components: valence, instrumentality, and expectancy. Valence refers to the affective orientation toward an outcome and has been interpreted as the importance, attractiveness, desirability, or anticipated satisfaction with outcomes (Van Eerde & Thierry, 1996). Instrumentality has been defined as the likelihood of obtaining an outcome. Vroom's (1964) model states that "the instrumentality of a number of outcomes, weighted by valence, is to be summed" (Van Eerde & Thierry, 1996, p. 576). According to Vroom (1964), an irrelevant outcome should have an instrumentality score of 0 and, therefore, have no effect on the relationship with the criterion. Meanwhile, Vroom (1964) characterized expectancy as a subjective probability of an action or effort leading to an outcome or performance. Vroom (1964) theorized that employees consciously decide whether or not to perform on the job. This decision depends on the employee's motivation level, which in turn depends on the three factors of valence, instrumentality, and expectancy. This valence–instrumentality–expectancy model became known as expectancy theory.

Expectancy theory has served as an important predictor of motivation and training participation (Salas, Cannon-Bowers, Rhodenizer, & Bowers 1999; Tharenou, 2001). Research indicates that individual attitudes and motivation to engage in training activities can be affected by how the individual perceives the benefits of training (Maurer & Tarulli, 1994; Maurer, Weiss, & Barbeite, 2003). In addition, Tharenou (2001) investigated how training motivation is influenced by the participants' expected value of the training. In his study, the training motivation was higher for younger employees than for older employees. An individual's learning orientation, or preference to develop

competence by acquiring new skills and mastering new situations, also affects employee participation and motivation (Van deWalle, 2001). A learning orientation can be contrasted with a performance orientation, which reflects the extent to which individuals seek out “easy situations that ensure positive evaluations of their capabilities” (Kozlowski et al., 2001, p. 4). Individuals with a performance orientation emphasize demonstrating their ability relative to others and avoid novel or challenging situations because failure reflects negatively on them (Dweck & Leggett, 1988; Gentry, Dickinson, Burns, McGinnis, & Park, 2006). Orvis, Fisher, and Wasserman (2009) found that performance orientation was positively related to learners’ off-task attention, an indicator of a lack of psychological availability.

Learning attitude and past learning experience. Two additional factors that affect motivation are learning attitude and past learning experiences. According to Goldstein and Ford (2002), differences in learning attitude and self-efficacy can produce individual differences in motivation. Bandura (1977) defines self-efficacy as an individual’s belief about his or her ability to perform a given task. Self-efficacy can affect the choice employees make as to what experiences or goals they will approach (or avoid) and the amount of effort they are willing to exert in a given situation. Guerrero and Sire (2001) illustrate the link between learning attitude and self-efficacy in their study using self-report data taken from training sessions in the fields of health, finance, and engineering. These researchers found that high levels of motivation increased an individual’s ability to overcome low levels of self-efficacy. Similarly, researchers have found that an individual’s learning attitude and feelings about the learning experience can encourage or discourage participation given the nature and quality of the individual’s

prior learning experiences (Baldwin, Magjuka, & Loher, 1991; Hicks & Klimoski, 1987; Krathwohl, Bloom, & Masia, 1964; Noe & Wilk, 1993).

Age

Research indicates that age can also be a determinant of training participation. In a survey conducted by the Center on Aging and Work at Boston College, researchers analyzed the effect of age and age-related factors on employees' attitudes and learning behaviors. Researchers discovered that younger workers were more interested and more likely to participate in training than older workers (Abdullah, 2011; Renaud, Lakhdari, & Morin, 2004; Shen, Pitt-Catsouphes, & Smyer, 2007). The link between age and education has been explained in terms of individual capability, with "a more educated employee being seen as having greater aptitude and willingness to be trained than a less educated employee" (Renaud et al., 2004, p. 729). Through an enhanced model of statistical analysis, a more precise understanding of the relationship between age and training participation was discovered.

Oosterbeek (1998) and Maximiano (2012) found that every additional year of formal education was correlated with a 2.4 percentage point increase in probability of individual participation in employer-related training. Results from the research of Oosterbeek (1998) and Maximiano (2012) are supported by a survey analysis of Canadian participation in continuous adult education. In *A Report on Adult Education and Training in Canada: Learning a living* (Statistics Canada. Human Resources Development Canada, 2001) Canadian researchers determined that individuals with a university degree were 7.5 times more likely to participate in a continuous adult education learning activity than those without a high school diploma. Given such results,

we might expect differences in employee participation in the learning coupon at FSA to reflect differences in age.

Gender and Level of Education

Researchers have also examined how age and level of education interact with gender differences to affect individual training participation (Backes-Gellner, Oswald, & Tuor, 2011; Burgard, 2012; Fitzenberger & Muehler, 2011; Green & Zanchi, 1997; Veum, 1996). In general, researchers found that males participate in training more often than females (Beck, Horan, & Tolbert, 1978; Brown, 1990). In a more recent and in-depth study on the relationship among age, level of education, and gender, Maurer et al. (2003) learned that young males (mostly college graduates) have higher probabilities for participating in training than women. The most commonly cited reason for this is that males have more training in technology and are assumed to have a higher capacity for technological change than females (Brown, 1990). However, more recent research suggests that generalizations about technological aptitude are not useful when planning the delivery of training (Corrin, Lockyer, & Bennett, 2010).

Using advanced statistical analyses of Oaxaca–Blinder decompositions for non-linear models to analyze the contribution of individual variables to gender differences in participation rates, researchers added the division of household labor as a factor that affects participation (Huber & Huemer, 2009). Having discussed how age, gender, level of education, and motivation can affect employee participation, I next look to define and understand the role of individual intention in influencing individual behavior.

Intention—Theory of Planned Behavior

As a result of their research on attitude and expectancy, Fishbein and Ajzen (1980) formulated the theory of reasoned action (TRA) to explain discrepancies between attitude and voluntary behavior. TRA suggests that behavior is determined by intention. Intention is “the cognitive representation of a person's readiness to perform a given behavior, and it is considered to be the immediate antecedent of behavior” (Ajzen, 1985, p. 32). This theory evolved later into the theory of planned behavior (TPB), in which researchers studied intention in settings where behavior was planned and controlled. Under this theory, intention is comprised of attitudes toward the specific behavior, subjective norms, and perceived behavioral control. These concepts are modeled in Figure 3.1. I define and discuss the effect of subjective norms on employee participation later in this review.

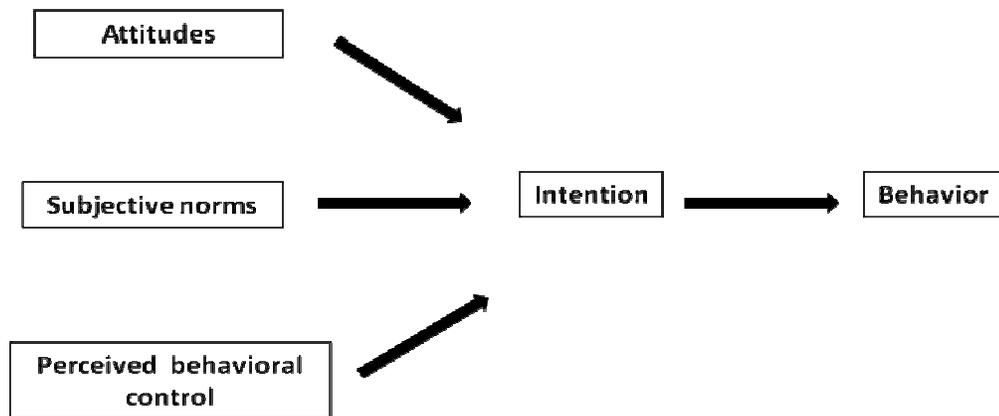


Figure 3.1. Theory of planned behavior

As Figure 3.1 indicates, attitudes, subjective norms, and perceived behavior control and shape intention to affect behavior. As discussed in the previous paragraphs, attitude toward a training participation is based on beliefs about the expected consequences of a specified behavior and the evaluations of these consequences. The

theory of reasoned action and the theory of planned behavior have successfully predicted a wide variety of behaviors, including occupational choice and job-seeking behavior (Fishbein & Stasson, 1990). Maurer and Palmer (1999) found the TPB model to be useful in predicting managers' voluntary development activity in response to peer and subordinate feedback. Along the same line of research, Tharenou (2001) found that expectancy-based motivation constructs were useful for predicting participation in employee development activities. McCarthy and Garavan (2006) found the constructs of perceived behavior control and subjective norms helpful for predicting managers' participation in developmental activity.

Social Learning Theory

One theory that relies heavily on the relationship between self-efficacy and motivation is social learning theory. Bandura's (1977) social learning theory claims that neither environmental nor could intrinsic factors alone adequately account for all influences on learning-related behaviors. Bandura asserted that the reciprocal interaction of social factors (which is a subset of environmental factors) and individual factors influenced individual learning behavior. Specifically, he proposed that people learn new behaviors from one another by observing the behavior of others. This process was later coined observational learning and social modeling. Bandura explained human behavior in terms of a three-way, dynamic, reciprocal model in which personal (intrinsic) factors and environmental factors (which includes social factors) act on behavior. Figure 3.2 illustrates this reciprocal relationship.

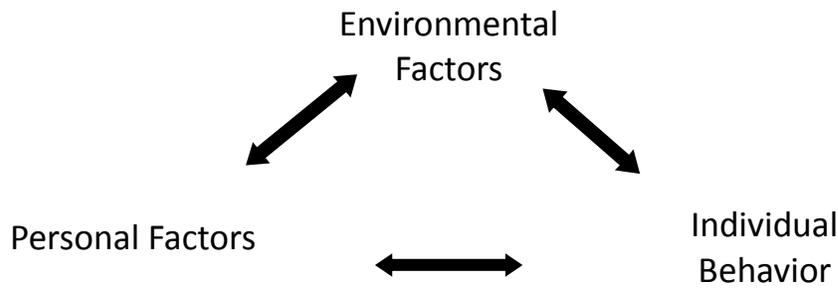


Figure 3.2. Social learning theory

Bandura's emphasis on the role of social behavior in the learning process made it possible for us to form the hypothesis that individual learning behavior can be influenced by the behavior of others in the workplace. Bandura's theory of social learning was developed further by Stanford sociologists, and professor Mark Granovetter honed in on the nature in which internal factors mesh with social (not environmental) factors to influence individual behavior. Granovetter (2005) explains that:

Actors do not behave or decide as atoms outside a social context, nor do they adhere slavishly to a script written for them by the particular intersection of social categories that they happen to occupy. Their attempts at purposive action are instead embedded in concrete, ongoing systems of social relation (p. 487).

Granovetter's argument of "embeddedness" asserts that "behavior is so constrained by social relations that to construe them as independent is a grievous misunderstanding" (p. 482). Embeddedness can be realized when employees begin to utilize each other as significant sources of information (Granovetter, 2005). Social learning represents the reciprocal interaction of internal and social factors that influence each other in order to drive individual learning behavior.

According to Bandura (1977), social learning theory predicts that individual behavior is influenced by the behavior of others. Our hypothesis that peers' and supervisors' participation influence individual participation was based on this concept. More specifically, Bandura explained that social learning takes place through observation

and modeling. During the process of observing behavior, the learner develops a mental model of the critical behaviors needed to complete an action. Information gathered through the observation of behavior includes symbols, words, pictures, actions, and many more factors. The learner stores this mental mode and recalls the impression when it is time generate new behavior. Once retained, feedback and repetitive processes refine actions that eventually lead to the desired behavior.

Observation and Modeling

In addition, researchers who examine how employees use each other as sources of information in the process of deciding to participate in training have done so through the constructs of observation and modeling. What these terms have in common is that they can be used to explain participation by cooperative or interdependent relationships. Bamberger and Biron (2007), for example, described peer influence as the persuasion by an individual's "referent other" (p. 127). In other words, anyone with a lateral relationship to the object of reference (the individual with a decision to make) is considered a referent (Bamberger & Biron, 2007; Lepine & Van Dyne, 2001; Umphress, Labianca, Kass, & Scholten, 2003). Chiaburu and Harrison (2008) argued that this line of research is critical for "making a case for greater attention to lateral relationships in organizational research" (p. 1089). As work becomes increasingly interdependent, studies of this nature gain more and more significance as researchers consider improving organizational performance through social factors such as peer and supervisor influence.

Thus far our review of the literature reveals that many personal antecedents to employee participation exist in learning activities. I have also shown how our research hypotheses are based upon the literature I have reviewed in this chapter. Next, I discuss

the literature that relates to the effects of group size, peer, and supervisor relationships on employee participation.

Group Size

Research indicates that group size can significantly affect a wide range of variables, including individual and group performance, participation, and member satisfaction (Hackman & Vidmar, 1970; Thomas & Fink, 1963). Of particular use to this study is the work of sociologist Georg Simmel, who found that individual participation in a group activity decreased as the size of the group increased. Researchers attribute the decrease in participation in large groups to the phenomenon of social loafing (Latane, Williams, & Harkins, 1979). Social loafing refers to “the tendency to reduce one’s effort when working collectively compared with coactively on the same task” (Karau & Williams, 1993, p. 683). The most common explanation for social loafing that is provided in the literature is that individual productivity cannot be associated with specific individuals (Latane et al., 1979). In other words, personal responsibility for work becomes diffused as individuals “hide in the crowd” (Latane et al., 1979, p.830). Research also indicates that large groups have also reflected greater levels of absenteeism and personnel turnover due to social loafing (Shaw, 1981).

Researchers have noted that larger groups are characterized by more formal, impersonal interactions with less frequent communication (Chidambaram & Tung, 2005; Liden, Wayne, Jaworski, & Bennett, 2009). On the other hand, researchers have noted that small groups (usually four to five individuals) are characterized by intimate, ongoing face-to-face association, long-term cooperation, and higher maintained levels of communication than larger groups (Lowry, Roberts, Romano, Cheney, & Hightower,

2006). The diminished communication in larger groups has been linked with less member involvement (Hackman & Vidmar, 1970; Thomas & Fink, 1963). Therefore, I expect employee participation at FSA to reflect the effects of group size and the patterns of conformity and diffusion of responsibility associated with it, as described in our literature review.

A second explanation for social loafing is that individuals find the task unimportant, uninteresting, and trivial (Latane et al., 1979). This second explanation resonates with our previous discussion of the theories of reasoned action and planned behavior and their relation to motivation and employee participation. Therefore, details such as common goals, patterns of social interaction, and length of time spent working in a group might all be important in understanding the magnitude of peer or supervisors' effect on individual employee participation. Next, I explore the literature on peer relationships and their impact on individual behavior. Although the body of literature related to the influence of peers and supervisors on employee participation in learning activities is small relative to the literature reviewed herein, this disparity provides further reason for justifying this study.

Peers and Subjective Norms

Researchers have observed in ethnographic and empirical studies that individual perceptions and behavior can be affected by those of their peers and co-workers (Angrist & Lang, 2004; Baker, 2011; Gould, 2008; Hoxby, 2000; Ichino & Maggi, 2000; Mas & Moretti, 2009; Miller, 2011; Neale, 2011; Sacerdote, 2001; Zimmermann, 2003). The close proximity of work groups at FSA can lead to behavioral regularities and close interpersonal relations between co-workers in such a way that they influence individual

perception and behavior. These behavioral patterns have been described in the literature as subjective norms. Hertz and Williams (2009) conceptualize subjective norms as “the likelihood that specific referent others believe one should engage in the behavior (normative beliefs) and one’s motivation to comply with those beliefs” (p. 637). Group norms are informally agreed-upon standards that determine the kinds of actions that are permitted or condemned within a group. Who can be counted on to complete a task and whom others can look to for guidance and advice are instances that might involve subjective group norms.

Evidence of the influence of subjective norms on individual behavior can be found in the research on organizational support theory. According to this theory, employees form a global perception of the extent to which the organization cares about their well-being and demonstrates appreciation for them, called perceived organizational support (Eisenberger, Huntington, Hutchison, & Sowa, 1986). If the employees perceive the organization as supportive, they feel an obligation to return this support in the form of attitudes and behaviors that enhance the organization (Rhoades & Eisenberger, 2002). When one person treats another well, the reciprocity norm obliges the return of favorable treatment leading to beneficial outcomes for both the employee and the employer (Gouldner, 1960). Based upon this research, it seems reasonable to expect individuals to identify and participate in learning opportunities that are beneficial to themselves, their peers, and the organization if they are not costly to perform. If participation is perceived to be too costly, then the organization should consider ways to offset these costs.

My research on peer effects reveals that not all peer influence is positive. Negative peer effects have been observed in education, in crime, and with substance

abuse (Calvó-Armengol, Patacchini, & Zenou, 2009). For instance, Bayer, Hjalmarsson, and Pozen (2009) found that juvenile offenders serving time in the same correctional facility influence each other's subsequent criminal behavior. Duncan, Boisjoly, Kremer, Levy, and Eccles (2005) found that males who themselves binge drank in high school have a fourfold increase in their number of college binge-drinking episodes (per month) when assigned a roommate who also reported binge drinking in high school. Several other studies have demonstrated that a worker's incentive to slack off in productivity is stronger when his or her co-workers' inclination is the same (Falk & Ichino, 2006; Ichino & Maggi, 2000).

The implication of these findings on peer effects is that behavior—regardless of whether it is positive or negative—can be multiplied and spread throughout an organization. Therefore, it is important to acknowledge the significant role that peers can play in influencing employee training participation, particularly in groups where employees look to each other for information and guidance on how to proceed with important decisions. In the next section, I discuss how supervisors affect employee participation.

Supervisors

Although peers can play a significant role in influencing individual behavior, some researchers have argued that supervisors are the most important factor in influencing individual training behavior (Hughes, 2004; Senge, 2000; Wallo, 2008). However, not all researchers agree on the supervisor's role in influencing employee behavior. Some have suggested that supervisors are critical actors, but play an indirect role in facilitating the development of their staff (Hughes, 2004). Yet the direct role that

supervisors can play in the professional development of counselors and clinicians is well documented (Falender, Burnes, & Ellis, 2012; Haynes, Corey, & Moulton, 2003; Kaslow, Falender, & Grus, 2012). Other research indicates that supervisors have enabled individual learning behavior by playing many other workplace roles, such as coaches and facilitators of professional development (Macneil, 2001; Senge, 2000). Therefore, the role of guidance and coaching should be considered in our understanding of the factors that influence employee participation. Next, I discuss the multidimensional model of employee participation.

Multidimensional Model of Employee Development

Hurtz and Williams (2009) introduced a multidimensional theoretical model of employee development that includes most of the personal and social determinants discussed thus far. The model is comprehensive and includes all of the well-known explanatory variables and their effects on individual behavior, such as attitudes, perceived behavioral control, subjective norms, reactions to past activities, perceived social support, learning goal orientation, and work centrality. A key contribution of this model is that it provides multiple perspectives and definitions for enhancing the construct validity of previous theories, such as the theory of reasoned action (TRA; Fishbein & Ajzen, 1975) and theory of planned behavior (TPB; Ajzen, 1985). I illustrate how the model clarifies previous research in the following paragraphs. Overall, I agree with other researchers that this multidimensional model has value for understanding and predicting employee participation in organizations (De Cuyper, Raeder, & Van der Heijden, 2012; Gorges & Kandler, 2012; Judge & Kammeyer-Mueller, 2012; Kraimer, Seibert, Wayne, Liden, & Bravo, 2011; McCarthy, Darcy, & Grady, 2010; Morrell, & Korsgaard, 2011;

Noe, Tews, & Dachner, 2010; Orvis, & Leffler, 2011; Wan, Compeau, & Haggerty, 2012; Yang, 2012).

Concepts Clarified by the Multidimensional Model

Hurtz and Williams (2009) include TPB as the core of their multidimensional model and expand on TPB by including more direct ratings of availability during the period of participation. Hurtz and Williams (2009) pointed out that Fishbein and Stasson (1990) questioned the intended meaning of Azjen's (1985, 1991) perceived behavioral control in the TPB, providing three possible definitions of control. First is the locus-of-control perception regarding the degree to which an individual, versus other people or events, determines his or her engagement in a particular behavior. Researchers have found support for locus of control as a predictor of individual motivation to learn (Colquitt, LePine, & Noe, 2000). A second perspective on perceived behavior control falls in line with Bandura's (1986) self-efficacy construct where an employee's belief that he or she has the capacity to participate in training if he or she desires.

Maurer and Tarulli (1994) found evidence that self-efficacy with respect to improving career-related skills was related to intentions to engage in employee-development activities. A third perspective on control involves perceptions of the presence or absence of factors that could facilitate or inhibit participation in training activities such as time and resources. Noe (1986) referred to this as "environmental favorability" (p. 738). Related to this is the notion of the availability or lack of employee development activities. If an organization does not offer any opportunities for employee development, then participation is out of the employee's volitional control. By including

direct measures of each of these notions of control in their multidimensional model, Hurtz and Williams (2009) enabled researchers to find more meaning in their results.

Another distinction made by the multidimensional model is between general attitudes toward participation and expectancy-value perceptions regarding the potential outcome of participation. According to the TRA, the expectancy-value perceptions are heavily utility-based and reflect judgments regarding how useful training will be for attaining desired outcomes (Birdi, Allan, & Warr, 1997; Clark, Dobbins, & Ladd, 1993). In contrast, general attitudes are viewed as more affect-laden and reflect perceptions of how enjoyable and worthwhile an individual expects the activity to be. Hurtz and Williams (2009) used these insights in their multidimensional model to portray a wider range of an employee's thoughts and feelings toward participating in training activities.

Environmental Determinants of Employee Participation

One of the limitations of Hurtz and Williams' (2009) multidimensional model of employee development is that it fails to consider how environmental factors such as union presence, legislation, policy, and presidential management agendas affect employee participation. This perspective is important for understanding employee motivation within a federal agency because legislation and policy establish boundaries and guidelines for employee behavior (Kluve et al., 2007). Therefore, our conceptual framework for understanding participation is unique because it is comprehensive and includes the potential of environmental factors to affect individual participation.

I label these environmental factors because they operate from outside the agency to affect individual behavior. For example, the PBO legislation discussed in chapter 2 enabled FSA's officials to establish performance goals for its employees and develop

systems for holding employees accountable. In a similar fashion, Executive Order No. 13,111 provided the legal framework in which FSA officials could develop training policy for promoting professional development. Interactions between employees might have been regulated by the guidelines established by that executive order. Therefore, environmental factors can have an effect on an employee's cognitive processes, thereby influencing his or her decision to participate in the learning coupon at FSA. Next I discuss our research model and conceptual framework for this study.

Research Model and Conceptual Framework

Based on our review of the literature, I believe that employee participation in the learning coupon at FSA is affected by characteristics of the individual, the work group, and the environment. The research model is represented graphically in Figure 3.3. The model includes three main categories of motivational and behavioral determinants of employee participation: personal, social, and environmental. Examples of each kind of determinant are encircled under the category to illustrate their potential to affect employee participation. I anticipate that each of these categories of variables interact in some unknown way to affect participation in the learning coupon at FSA. Whereas this model is a comprehensive one, I am only examining the social determinants part of the model because it has been the less examined aspect of the model. Next I discuss our hypotheses for how these variables affect participation.

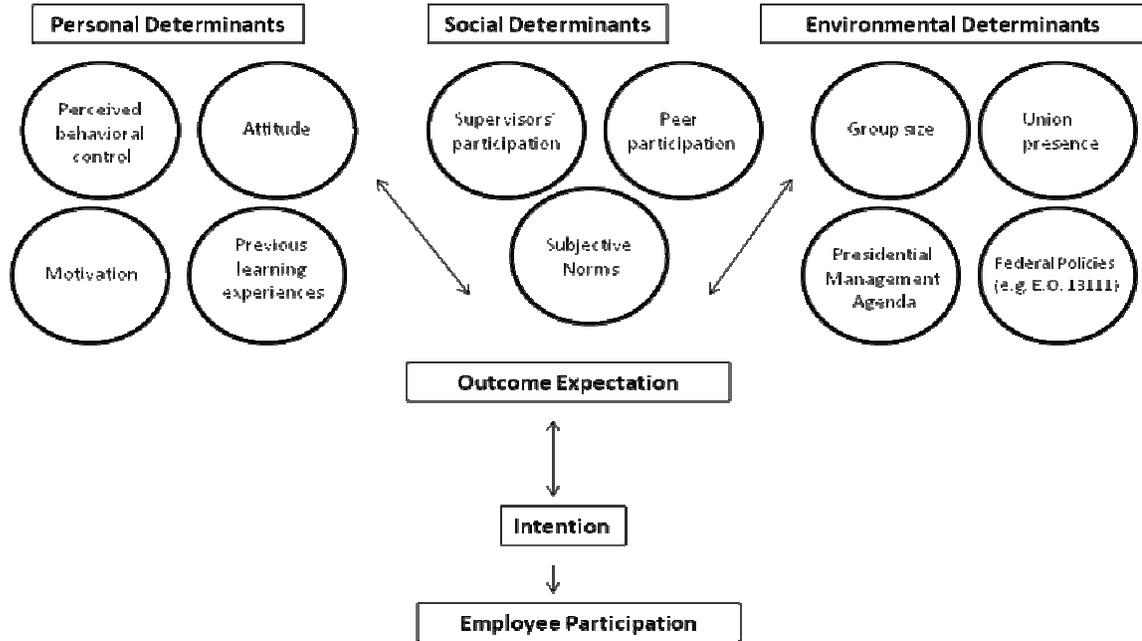


Figure 3.3. Conceptual framework and research model

Hypotheses

Using social learning theory, I proposed that social factors had an effect on individual participation in the learning coupon. I expected individual participation to increase as peer participation increased. Therefore, the hypotheses were as follows: The null hypothesis for peer participation (H_{01}) was that peer participation in the learning coupon did not influence individual decisions to participate in the learning coupon. The alternative hypothesis (H_{11}) was that peer participation in the learning coupon did influence individual decisions to participate in the learning coupon. The null hypothesis for supervisors' participation (H_{02}) was that the supervisors' participation in the learning coupon did not influence individual decisions to participate in the learning coupon. The alternative hypothesis (H_{12}) was that supervisors' participation in the learning coupon did

influence individual decisions to participate in the learning coupon. Our methodology for addressing these hypotheses is discussed in the next chapter.

Chapter 4: Research Methods

This chapter is divided into the following sections: (1) research objectives and hypotheses, (2) the research design, and (3) methods.

Research Objectives and Hypotheses

The research objective was to determine whether peer and supervisors' participation in the learning coupon influenced individual participation in the learning coupon initiative. The null hypothesis for peer participation (H_{01}) was that peer participation in the learning coupon did not influence individual decisions to participate in the learning coupon. The alternative hypothesis (H_{11}) was that peer participation in the learning coupon did influence individual decisions to participate in the learning coupon. The null hypothesis for supervisors' participation (H_{02}) was that the supervisors' participation in the learning coupon did not influence individual decisions to participate in the learning coupon. The alternative hypothesis (H_{12}) was that supervisors' participation in the learning coupon did influence individual decisions to participate in the learning coupon.

Research Design

A correlational research design was used to determine the relationship between individual participation, peer participation, and supervisors' participation in the learning coupon initiative at FSA. This research design is rooted in the tradition of the post-positivist school of thought, where interactions, influence, and outcomes are discovered through the estimation of statistical probabilities associated with a set of phenomena (Creswell, Plano Clark, Gutmann, & Hanson, 2003).

Method

The procedures for carrying out the research in this study were as follows: (1) define the research constructs under our theoretical framework, (2) develop hypotheses, (3) retrieve archival records from FSA's learning coupon database, (4) assign identification numbers and code individual data, (5) develop the statistical model for analyzing data, (6) analyze data, and (7) present results. Each step is detailed below.

Step 1. Prior to the selection of methods, I developed a conceptual model of how the variables in our dataset would interact and affect one another. Bandura's social learning theory informed my next step, the development of my hypotheses.

Step 2. I hypothesized that peer and supervisors' participation would have an effect on individual participation in the learning coupon. The dependent variable was individual participation, and the independent variables were peer and supervisors' participation.

Step 3. The original set of data came from FSA's learning coupon database and consisted of approximately 16,000 records on employee gender, supervisor, business unit, and status of participation. I deactivated 14,125 records from that database (2002–2006 and 2009–2011) and used the remaining 1,875 records from the year 2007–2008 to comprise the analytic sample. Data from these years was selected because it represents the highest level of participation (49%) in the learning coupon initiative. Chapter 5 discusses the results from the methods described in this chapter.

The status of participation was a yes–no variable that indicated whether or not each employee and each supervisor participated in training during the 2007–2008 calendar year. In the database, each employee's data was linked to her or his supervisor's

data. This linking enabled me to identify the employees who shared a common supervisor. From this data set, the following variables were constructed:

Individual participation was defined as whether or not the employee used the learning coupon during the 2007–2008 calendar year. The data was coded as “0” if the employee did not use the learning coupon during this time period and “1” if the employee did use the learning coupon during this period. Supervisor participation was defined as whether or not the employee’s supervisor used the learning coupon during the 2007–2008 calendar year. The data was coded as “0” if the employee’s supervisor did not use the learning coupon during this time period and “1” if the employee’s supervisor did use the learning coupon during this period.

Step 4. In this study, peer participation was defined as the percentage of employees who share the same supervisor as the target employee and who participated in the learning coupon. Specifically, I counted the number of employees who shared the same supervisor and participated in the learning coupon during the 2007–2008 year; this number was divided by the number of employees who shared the supervisor minus one. Finally, peer participation was dichotomized. If 50% or more of the employees of a supervisor participated in the learning coupon, peer participation was coded as 1. If less than 50% of the employees of a supervisor participated in the learning coupon, peer participation was coded as 0. Employees and supervisors were each assigned separate identification numbers; these identification numbers allowed us to preserve the hierarchical structure and relationships within FSA.

Step 5. I used hierarchical linear modeling (HLM) to analyze the data. The justification for the application of this method is two-fold. First, I needed to preserve the

nested structure of our data in order to make accurate inferences about how our variables interacted. Second, my theoretical framework suggested that individuals' participation could be influenced by variables that themselves could have been highly correlated. thus, I needed to use a multilevel statistical model to examine cross-level interactions among peers, supervisors, and participation.

Step 6. I developed two statistical models for analysis. The first was the unconditional model that did not contain any predictor variables. This model was necessary for establishing the probability of participation in the general population. The second model was comprised of two levels. The first level included the variable "other participation," which refers to the effect of peer participation on individual participation in the learning coupon. The second-level variables were supervisors' participation and group size. I selected hierarchical linear modeling (HLM) 7.0 software to analyze peer and supervisors' participation.

Step 7. The last step was to report my findings, which are discussed in chapter six.

Chapter 5: Results

In this chapter, I present the findings from the multivariate logistic regression analyses that were performed to estimate and evaluate the effects of other participation (i.e., peer participation) and supervisors' participation on the likelihood of individual participation in the learning coupon initiative at FSA. First, I describe the details of the data, including descriptive information about the sample. Next, I discuss the statistical models and the main and moderated effects of my variables on individual participation in the learning coupon. I rely upon the results obtained from the population-average model with robust standard errors because they were the most stable and required fewer assumptions about model specification.

Descriptive Information

The total number of employees at FSA during 2007–2008 was 1,875. Participation in the learning coupon was almost evenly split, with 48% participating and 52% not participating. There were 212 supervisors, with an average of 8.79 employees per supervisor (s.d. = 7.30). Appendix A contains the HLM report of these descriptive statistics. In this study, I specified the distribution of individual participation as Bernoulli and I specified the link function as logit. This produced a multilevel logistic regression, where 1 indicates that an individual participated in the learning coupon and 0 indicates that the person did not. Because the dependent variable is dichotomous, this is the most appropriate model to use in determining the possible effects of peer and supervisors' participation.

Statistical Models

I model participation for each employee as a function of the grand mean of the sample plus a random error. This model is “empty”—that is, fully unconditional, with no predictor variables. The equations for the model are defined as:

Level-1: $\text{Prob}(Y=1/B) = P$

$$\log[P/(1-P)] = \beta_0 \quad (1)$$

Level-2: $\beta_0 = \gamma_{00} + \mu_{0j}$ (2)

In equation 1, intercept β_0 represents individual participation as a function of the grand mean (γ_{00}). The second term (equation 2) estimates intercept β_0 as a function of the grand mean (γ_{00}) plus the residual variance between groups in the estimation of the average log odds of participation (μ_{0j}). This model serves as baseline for comparison with subsequent, more complex models, regarding the amount of variance in the average log odds of participation that might be explained by the model. The results from the empty model are presented in Table 5.1. A full report of the results is included in Appendix B. Table 5.1.

Results from the Empty Model

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx d.f.	p-value	Odds Ratio	Confidence Interval
For Intercept 1, β_0 Intercept 2, γ_{00}	-0.040776	-0.046345	-0.880	211	0.380	0.960044	(0.876, 1.052)

The probability of participation based on the log odds for the fixed effect coefficient ($\gamma_{00} = -0.040776$) is .49. This means that a typical employee at FSA is likely

to participate in the learning coupon slightly less than half of the time that it is offered. The odds ratio provides a similar estimate: On average, individuals are only 4% less likely to participate than to not participate. The empty model also provided estimates of tau (0.00013) and was used to calculate the interclass correlation (ICC). In the final estimation of the variance component, the chi-square statistic was not significant ($X^2 = 11.54311$; d.f. = 211; $p \geq .500$), indicating that there was no between-group variance in the training participation. As Equation 3 shows, the ICC is the proportion of the variance in participation that occurs at the supervisory group level. To ensure comparability between levels 1 and 2, a standard logistic distribution was assumed at level 1 such that the mean and variance of the logistic distribution were 0 and $\pi^2/3 = 3.29$, respectively (Evans, Hastings, & Peacock, 2000). This technique enabled me to assume that every employee had a certain propensity for participating in training, but only those employees whose propensity crossed a certain threshold actually participated in training. Thus, the ICC can be calculated as:

$$\tau_{00} / (\tau_{00} + 3.29) \quad (3)$$

This means that almost all of the variation in participation was within supervisory groups as opposed to between groups. Although the ICC is zero in this study, it does not necessarily mean that the group context is not important when compared with individual factors (Merlo, Chaix, Yang, Lynch, & Råstam, 2005). Furthermore, “when the ICC is 0, the suitability of performing a multilevel analysis is less obvious. However, a small ICC does not prevent the existence of significant associations between level-1 variables and level-2 variables.” (Merlo et al., 2005, p.447). The multivariate analysis framework was necessary for this study in order to identify and explore cross-level interactions

between independent variables and their effect on individual participation in the learning coupon at FSA. The main findings from the analyses are presented next.

Main Analysis

Based on the theoretical considerations from the literature review, group size, other participation, and supervisors' participation were selected as the independent variables to account for the differences in individual participation in the learning coupon at FSA. My level-1 variable, "other participation," was defined as employees who share the same supervisor. Group size and supervisors' participation were level-2 variables.

The full model is defined in the following equation:

Level 1: $\text{Prob}(Y=1/B) = P$

$$\log[P/(1-P)] = \beta_0 + \beta_1 * (OP_D50_{ij}) \text{ dichotomized \% of other group members who participated in the learning coupon)} \quad (4)$$

$$\text{Level 2: } \beta_{0j} = \gamma_{00} + \gamma_{01}*(SUP_PART_j) + \gamma_{02}*(SIZE_j) \quad (5)$$

$$\beta_{1j} = \gamma_{10} + \gamma_{11}*(SUP_PART_j) + \gamma_{12}*(SIZE_j) + u_{1j} \quad (6)$$

In level 1 of the statistical model (i.e., equation 4), I tested the main hypothesis that other participation affects individual participation. In level 2 of the statistical model (i.e., equation 5), I tested for the effects of supervisor and group size on individual participation. β_0 represents individual participation as a function of the grand mean (γ_{00}) across supervisory groups, plus mean differences in participation when supervisor participation is set to zero (γ_{01}) for an average group size (γ_{02}) of 9. β_1 represents individual participation as a function of the grand mean of other participation when it is more than 50% (γ_{10}), plus mean differences in participation when supervisor participation is set to zero (γ_{11}), plus differences in participation when group size (γ_{12}) is grand-mean

centered. I include a random effect only for the β_1 , the effect of other participation, because variance in β_{0j} was not statistically significant in the fully unconditional model. This model controls for both possible covariance in the intercept and slope and possible variance in the intercept identified in a more complex model that includes level-1 and level-2 variables.

Testing the Model

In my first attempt to test the model, I group-centered the variables other participation and group size; , and since supervisor participation was dichotomized, I specified it as un-centered. However, when I attempted to run the model in HLM 7.0, the model would not converge on a solution. Therefore, I dichotomized and coded other participation as 0 to represent “less than 50%” and 1 to represent “more than 50%.” The practice of transforming a continuous variable into a categorical variable has been criticized by many methodologists for providing less precise estimations of an effect (Cohen, 1983; Humphreys & Fleishman, 1974; Peters & Van Voorhis, 1940). However, the dichotomization of the other participation variable in this study allowed for a more stable representation of individual participation than the continuous distribution. The results are presented in Table 5.2.

Table 5.2.

Final Estimation of Fixed Effects (Population-average model with robust standard errors)

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	p-value	Odds Ratio	Confidence Interval
For Intercept 1, β_0							
Intercept 2, γ_{00}	0.148008	0.048968	3.023	1649	0.003	1.159522	(1.053,1.276)
Sup_Part, γ_{01}	-0.103783	0.059501	-1.744	1649	0.081	0.901421	(0.802,1.013)
Size, γ_{02}	-0.011453	0.004253	-2.693	1649	0.007	0.988612	(0.980,0.997)

For OP_D50 slope, β_1	-5.593590	0.394292	-14.186	209	<0.001	0.003722	(0.002,0.008)
Intercept 2, γ_{10}	1.017986	0.641343	1.587	209	0.114	2.767615	(0.781,9.803)
Sup_part, γ_{11}	0.190406	0.036796	5.175	209	<0.001	1.209741	(1.125,1.301)
Size, γ_{12}							

Average Log Odds of Participation

The estimate for the average log odds of participation ($\gamma_{00} = 0.148008, p < .05$) indicates that the estimated probability of individual participation in the learning coupon is .54 when other participation is less than 50%, when the group size is average, and when the supervisor does not participate. The estimated log odds of participation when group size is one standard deviation above the mean is .071 and .225 when the group size is one standard deviation below the mean.

The corresponding probabilities for individual participation when group size is one standard deviation above the mean is 1.07 and 1.25 when group size is one standard deviation below the mean. The difference in probabilities is 0.18. The variable supervisors' participation ($\gamma_{01} = -0.103783, p > .05$) was not statistically significant, suggesting that supervisors' participation does not have a significant direct effect on individual participation in the learning coupon at FSA.

Average Effects of Other Participation

The estimate for the average log odds of the effect for other participation when other participation is 50% or more, the supervisor does not participate, and with average group size is negative ($\gamma_{10} = -5.593590, p < 0.001$). This indicates that other participation has a significant and direct negative effect on the likelihood of individual participation in the learning coupon at FSA.

The estimated log odds of participation when group size is one standard deviation above the mean is -6.92 and -4.26 when the group size is one standard deviation below the mean. The corresponding probabilities for individual participation when group size is one standard deviation above and below the mean are .001 and .02, respectively. Again, supervisor participation does not affect individual participation or its relationship to other participation.

Group Size and Interaction Effects

The estimate of the average log odds of the effects of group size, ($\gamma_{02} = -0.011453$, $p < .05$) is negative and statistically significant. As group size increased, the likelihood of individual participation decreased. The model also indicates the presence of a cross-level interaction between other participation and group size. Size mitigates the effect of other participation on individual participation in the learning coupon at FSA by .190 log odds.

Summary

In summary, I modeled the variation in individual participation in the learning coupon at FSA as a function of three variables: group size, other participation, and supervisors' participation. The development of the model and selection of key variables were informed by the literature review on the many individual, environmental, and social factors known to affect individual behavior. After converting other participation from a continuous to a dichotomous variable, I was able to successfully test my hypotheses about the effects of peer and supervisors' participation. I rejected H_{01} —namely, that other participation did not affect individual participation in the learning coupon at FSA. The results indicate that other participation has a significant negative effect on individual

participation. As other participation increased, the likelihood of individual participation decreased.

I also found that group size had a significant negative effect on individual participation. As the group size increased, the likelihood of individual participation decreased. Our model demonstrated that size mitigates the negative effect of other participation on individual participation. As group size increases from low to high, the negative effect of other participation decreases. Lastly, I accepted H_{02} —namely, that supervisors' participation did not have a statistically significant influence on individual decisions to participate in the learning coupon. The next chapter offers our insights concerning these findings and discusses areas for further research.

Chapter 6: Discussion

The purpose of this chapter is to explain the findings of this study and to discuss its implications for FSA and for professionals in education policy and research. This chapter is comprised of six sections. Section one summarizes the findings based on the statistical analysis of the data. Section two uses social learning theory to illustrate how both personal and environmental factors can be used to explain the findings in this study. Section three discusses the potential of these findings to affect training policy and leadership practice at FSA. Section four explains, from a more generalized perspective, the importance and implication of these findings for future research and education policy. Section five assesses the study's limitations. Section six concludes the chapter with suggestions for further research.

Findings

The first finding was that other (i.e., peer) participation had a negative effect on individual participation. In other words, as peer participation increased, the likelihood of individual participation decreased. The second finding was that supervisors' participation in the learning coupon had no significant effect on individual participatory behavior. The last finding showed that group size affects individual participation in the learning coupon. In general, the larger the group size, the less likely individuals were to participate in the learning coupon. A secondary finding related to group size revealed an interaction effect between group size and peer participation. Group size moderated the negative peer effect on individual participation such that the magnitude of the negative peer effect decreased as the group size increased by one standard deviation. Explanations for the first two findings are offered in the following section. As group size is a function

of the work environment, its effect on individual participation, along with peer and supervisor relationships, is discussed in the section on social environment and organizational context.

Explanation of Findings

The main hypothesis for this study was that other (i.e., peer) participation would positively affect individual participation. The results of this study revealed that peer participation negatively affected individual participation, and that supervisors' participation did not significantly affect individual participation. To explain these findings, I referred back to social learning theory, the theoretical framework upon which this study was based. Social learning theory posits that individual behavior can be learned through the processes of observation and modeling. These processes have also been referred to as observational learning, vicarious learning, and social learning. Two sets of factors—personal and environmental—are used to further explain how individual behavior can be learned vicariously or by observing others.

Where previous theories of human behavior favored either environmental or internal determinants of behavior, Bandura's (1977) social learning theory conceptualized psychological functioning as the continuous reciprocal interaction between behavior, cognitive, and environmental influences. Within this framework, social learning was comprised of several discrete cognitive processes for perceiving, evaluating, and regulating behavior. For the purposes of this study, the cognitive processes will be referred to as personal factors and include outcome expectations, self-efficacy, goal setting, and self-regulation. Likewise, the environmental factors will be referred to as contextual factors or influences.

In the following subsections, I explain how these concepts within the social learning theory can be applied to gain insights into the findings from this study. First, I provide an example of how modeling and observational learning might occur within FSA. Then I demonstrate how Bandura's (1977) four cognitive processes can render an individual capable or incapable of managing his or her own learning behavior. This part of the discussion explains how differences in these individual cognitive processes can result in the inverse relationship between peer and individual participation. Next, I factor in additional research to explain why supervisors' participation did not significantly affect individual participation. Value congruity, perceived trustworthiness, and perceived organizational support all contribute to understanding the absence of a significant supervisor effect. Finally, the last subsection in the explanation of the findings discusses environmental factors, including group size, frequency of communication, peer relations, and supervisor relations.

Observation Learning, Imitation, and Modeling

Research shows that a change in behavior of one person can be the result of observing the behavior of another person and the resulting consequences of that behavior. Bandura (1977) attributed such behavior change to a phenomenon called modeling. This phenomenon is also called observation learning, imitation, vicarious learning, and social learning. What is "observed" is the behavior of the model, the consequences of this behavior, and verbal cues and instructions of the model. Research has also indicated that employees are likely to imitate the actions of those who are aligned with and represent their own values and beliefs (Mechanic, 1962). For example, an employee who measures

optimal performance as the ability to perform a task consistently under many different circumstances might expect others to perform up to their standard of work excellence. Similarly, a logical explanation for the results indicating that individual participation is negatively affected by peer participation could be that the peer group's values, beliefs, and practices were incongruent with mainstream social norms for a given workgroup. For example, a new employee who spends most of his time with peers who think little about employee engagement, speak negatively with distrust about management, and whose work ethic is perhaps in need of improvement will likely follow the behavior of his peers. The new employee might not only learn attitudes and behavior that alienate him from the mainstream social norm, but might also learn to regard such behavior as acceptable and learn ways to undermine workplace activities not aligned with his and his peers' beliefs and values. This is even more likely when there are no observed negative consequences. As these examples illustrate, observation or social learning can be a powerful and influential psychological phenomenon in the workplace. The concept of outcome expectation will be discussed in the following section.

Outcome Expectation

A key cognitive aspect of the observation or modeling process is the observer's evaluation of consequences that might result from the modeled behavior. These subjective perceptions are formed through past experiences and learned vicariously through the observation of others. An individual's perception about the consequences that will follow as a result of imitating the behavior of the model is what Bandura (1977) refers to as perceived outcome expectation. The decisions employees make about what actions to take and which behaviors to suppress in the workplace are influenced by

perceived outcome expectations. Thus, employee differences in the perceived outcome expectation of participation in the learning coupon offer a plausible explanation for the divergence in peer and individual participation.

The following scenario can better demonstrate how perceived outcome expectation might affect an individual's decision to participate in the learning coupon. Susan, an employee at FSA, has a subscription to a government technology journal and is very excited about the opportunity to enroll in an upcoming course. Members of Susan's group typically value training and seize the opportunity to participate when training is offered. However, Susan has observed that one of the consequences of participation in training is that some group members fall behind in their work assignments and miss deadlines. Susan has witnessed how the work on her peers' desks accumulates while they are away participating in training. Susan has also observed her peers staying late in the evening and has overheard conversations about working on the weekends to catch up on work that had been delayed due to previous participation in training. After seeing and hearing this, Susan decided not to participate in the upcoming training because she has small children at home and cannot afford to work beyond normal working hours.

Presumably, Susan has calculated the costs and benefits of participation and does not perceive the benefits of participation outweighing the costs. In other words, the perceived expected outcome was not positive or strong enough to compel Susan to participate in training. It is also possible that Susan's self-efficacy (the next concept to be discussed in Bandura's (1977) theory of social learning) might have been a contributing factor that influenced her decision not to participate in the training.

Self-efficacy

Another important concept in the social learning process is self-efficacy. Self-efficacy is defined as the extent to which an employee believes that he or she can attain a goal. In the previous scenario, Susan might not have believed in her ability to maintain her family responsibilities and remain current in her workload while participating in workplace training. If this were true, the decision not to participate might have been a reflection of low self-efficacy. Had Susan chosen to enroll in the training, we could theorize that her self-efficacy and motivation were sufficiently adequate regarding her ability to both participate in training and find a workable solution to the workload issue. Closely related to the concept of self-efficacy in deciding whether to participate in training is the concept of goal-setting. We will now examine goal-setting in the social learning/modeling process.

Goal Setting

Goal setting is intricately entwined with outcome expectation and self-efficacy. Goals are a function of the outcomes an employee expects to experience as a result of engaging in a particular behavior. In other words, goals represent the mental picture of anticipated, desired, or preferred outcomes (Bandura, 1977). If we take another look at Susan's case, another logical conclusion might be that—had she established clear goals to support and reinforce the desired expected outcomes—she might have strengthened her self-efficacy, which in turn might have resulted in a more positive perception of self. Thus, a more positive view of her ability to manage the obstacles she faced might have led to a decision to participate rather than not participate in training. Bandura (1977) argued that the employee's ability to integrate and manage all of the cognitive concepts

discussed herein is critical in the behavioral modeling process. He referred to this ability as self-regulation, the next concept discussed.

Self-regulation

Bandura's (1977) social learning theory includes self-regulation as a third key concept of the modeling process in social learning. Self-regulation involves three cognitive sub-processes: self-observation (examination of one's own thoughts and emotions), self-judgment (the process through which an individual evaluates whether his or her actions enable him or her to make progress toward his or her goals), and self-reaction (the reaction an individual has to his or her evaluation of his or her behavior). Together, these processes constitute self-regulation, defined as the employee's ability to manage and control his or her learning behaviors (Bandura, 1977). Unless students have goals and feel efficacious about reaching them, they might not be capable of activating the personal cognitive processes needed for self-regulation. Arguably, Susan's lack of clear goals and perhaps her low sense of self-efficacy might have hindered her ability to perform self-regulatory processes. In other words, these personal limitations might have prevented Susan from engaging in self-reflection, engaging in self-evaluation, and subsequently reacting to this cognitive process with the anticipated proactive self-directed learning behavior. If participation is the norm at FSA, then perhaps individual differences in outcome expectation, self-efficacy, goal setting, and self-regulation can explain why some employees deviate from this norm.

Thus far, Bandura's (1977) concept of self-regulation embedded in social learning theory has been used to explain differences in peer and individual participation. However, to explain why supervisors' participation did not have a significant effect on

individual participation, some discussion must be given to potential factors that fall outside of Bandura's (1977) cognitive framework of social learning. For example, an employee's awareness of his or her supervisor's participation in the learning coupon is an obvious factor to be considered in explaining whether the supervisor has an effect on the individual's participation. It is unlikely that every supervisor of a peer group in this study announced his or her intention to participate or actually participated in the learning coupon initiative. Even if employees were aware of some of their supervisors' participation, this awareness might or might not have been statistically significant to affect individual participation. In addition, some supervisors might believe that training takes the employees away from their desk and away from the work that has to be performed. Hence, employees might not perceive supervisors to be that supportive of employee career development in the first place.

Trustworthiness also affects an employee's perception of model worthy behavior. Trust is mutually established through significant interactions and acts as the foundation for building support and positive exchanges in the employee-supervisor relationship (Dansereau, Graen, & Haga, 1975, as cited in Gómez & Rozen, 2001, p. 54). Research findings indicate that supervisors' trust and influence have a positive relation with participation, job performance, and satisfaction (Goris, Vaught, & Pettit Jr., 2003). Finally, researchers agree that supervisors who maintain high levels of positive interaction and support for their subordinates will also increase perceived occupational support, which acts as a reward for employee fulfillment of occupational obligations, and the psychological contract (Rhoades & Eisenberger, 2002). Perceived organizational support is defined as the extent to which an employee believes that his or her company

cares about him or her and appreciates his or her contributions to the company (Eisenberger et al., 1986).

In sum, employees' awareness of supervisor participation in ongoing learning activities, trustworthiness, and perceived occupational support has positive correlations with employee participation. Perceived imbalances in any of these factors could explain why supervisors' participation did not significantly affect individual participation. Next, I discuss the contextual factors (group size, frequency of communication, and social relationships with peers and supervisors in the work environment) and their effect on participatory behavior at FSA.

Social Environment and Organizational Context: Group size

Group size had two distinct effects on individual participation in this study: a main effect and an interaction effect. First, group size had a direct negative effect on individual participation, such that the likelihood of individual participation decreased as group size increased. This finding is consistent with previous studies on the effects of group size and group performance (Hart, Karau, Stasson & Kerr, 2004; Karau, & Williams, 1993; Ohlert & Kleinert, 2013). The findings also indicate an interaction effect between other participation and group size. Group size mitigates the negative effect of other participation on individual participation in the learning coupon such that the likelihood of individual participation actually increased slightly as the size of the group increased by one standard deviation. This is consistent with previous research that showed that small groups tend to be more effective at facilitating individual participation because of the high visibility of other group members' actions (Olson, 1965).

Frequency of Communication

There is also reason to think that smaller group size promotes more effective group communication. For example, research has shown that smaller groups are more committed to internal information exchange than larger groups because face-to-face interaction is more prominent (Cruz, Boster, & Rodriguez, 1997). The effective exchange of social information through frequent communication not only enables group members to develop a shared cognitive model about the expectations of training participation, but also helps them cultivate a social environment of openness and trust (Nahapiet & Ghoshal, 1998). In contrast, members of larger groups tend to have less motivation and make less effort to coordinate and communicate with one another about the work concerns (e.g., Cruz et al., 1997). The precise effect of group size can be considered as the interplay of concurrent changes in social interaction and exchange of resources in groups (Brandon & Hollingshead, 2004). Thus, frequency of communication can be a reflection of group size.

Peer Relationships

Interpersonal relationships are important in the work context because they can serve as a frame of reference for individuals, allowing them to gain information and make sense of their experiences (Lawrence, 2006). To illustrate more clearly peer relationships and likely impact, several hypothetical yet typical scenarios are presented to depict the thought process and behavior of a reasonable employee in the workplace. In this section, I resort back to the example of Susan, a fictitious FSA employee who wants to participate in a training opportunity but is fearful of the consequences. In the original scenario, Susan observed piles of work accumulating on the desks of her colleagues who had

participated in training during the work week. Through the modeling process, Susan used her peer group as a frame of reference for estimating the potential consequence of participating in behavior that she interpreted to mean working on Saturday to get the unfinished work completed. Based on Susan's observation of mounting work piles and the knowledge that some of her colleagues were spending time on Saturdays catching up on missed work, Susan assumed that the employees in her work group were extraordinarily hard working and self-motivated. Quietly, Susan wondered if she was really a good fit for that group.

Susan discussed her desire to pursue further training with her husband Paul. Paul and Susan agreed that she should follow her passion and participate in the training opportunity. As such, Susan made plans to make up for the time spent in training by working an additional two hours for the next couple of Saturdays. As Susan began to work on Saturdays, she learned that two of her colleagues were using their time on Saturday to see each other, not necessarily to catch up on work. Now, instead of Susan seeing her colleagues as extraordinarily self-motivated, she perceives them to be sneaky and slightly untrustworthy. Susan's discomfort grows, and she eventually decides to limit her conversation and interactions with other group members. Research indicates that employees interpret information and work situations and interact with others based upon those perceptions and interpretations (Fiske, 2004). However, in Susan's case, the problem is that her perception and interpretation of information and work situations were inaccurate. Depending upon the strength and nature of Susan's relationship with her peers, she could have used her relationship to discuss her concerns and gain more information to clarify the accuracy of her perceptions, interpretations, and conclusions

drawn about her colleagues. Therefore, this example also illustrates that frequent and open communication in the workplace can help build relationships, trust, and respect for others in the work group.

Supervisor Relationships

Although the findings clearly indicated that supervisors' participatory behavior did not have a significant effect on individual participation, the scenario in this section emphasizes how the social context could affect individual perception and participation in the learning coupon. Consider the following scenario: Gina, Dave, and Kim are all employees in the same business unit at FSA. Gina is an "early bird" and typically arrives to work at 8 am. Gina and a few other "early birds" gather informally near the coffeepot each morning to discuss office politics. However, for the past week Gina has missed the updates at these informal gatherings, which included an announcement regarding the window of opportunity to participate in the learning coupon. Dave, the supervisor who informally coordinates these gatherings, decides to update Gina during the lunch break. Around noon, Dave spots Gina in the hallway with Kim, another member of the business unit. However, Kim is not an "early bird." In the hallway, Dave singles out Gina to remind her about the opportunity to participate in the learning coupon. Quietly, Kim is left wondering whether Dave saw her standing in the hallway with Kim. Later, Gina asks Kim how she plans to use her learning coupon. Kim, still feeling offended by Dave's behavior, tries to conceal her hurt from Gina, her close friend and colleague. Kim explains to Gina that she does not think participation in the learning coupon would be worth her time this year.

Dave might not have intended to make Kim feel like an outsider, but his association with Gina and the morning coffeepot chats suggested to Kim that he perceived Gina as more a part of his group than Kim. This scenario illustrates how supervisor behavior and Dave's perception of work groups can lead to an insider–outsider dynamic within an organization. To eliminate such insider–outsider effect, FSA leaders should encourage supervisors to make a conscious effort to send clear messages concerning the importance of further training and allocate resources and information evenly across the work group so that employees are well informed of the opportunities available to them. In the next section, I explore the implications these findings for training policy and leadership style at FSA.

Implications for FSA

Research indicates that most employees generally want to exhibit behavior that is acceptable in the workplace, perform their responsibilities, and do the right thing (Mayer, Kuenzi, & Greenbaum, 2010). Leaders help employees do this by enacting practices, policies, and procedures that help facilitate the display of normative behavior (Mayer et al., 2010). Once these practices are communicated and enacted, leaders must model behavior that is consistent with these practices. These practices and principles should reflect their beliefs that training and development are highly esteemed and honorable within the organization and contribute to desired outcomes for the department. Such practices should dispel inaccurate perceptions and undesirable stigma associated with training participation—most notably that training is remedial and that the employee lacks the very knowledge and skills that he or she was expected to have already mastered. Therefore, the first implication of this research is that FSA's leaders should communicate

to employees—through their own direct participation in professional development activities—that they not only support, but also value employee development and are ready to reinforce the agency’s core values. This can entail revisiting the vision and values of the department to strengthen and clarify beliefs about continuing education for every employee. Furthermore, FSA should adopt management and leadership practices to link the successful acquisition of new skills and improved competence to training participation and ultimately to the achievement of outcomes for the organization.

A second implication of these findings is that peer groups are an authentic source of leadership that must be recognized by FSA. FSA leaders should tap this source in ways that promote a more even distribution of power. Research indicates that well-educated peers tend to have a superior knowledge about training opportunities and demonstrate a greater ability to build strategy and skills for upcoming tasks (Baron, 2011; Noe & Wilk, 1993). The literature on participation in employer-sponsored training also reveals that higher-educated colleagues have had more experiences in mastering learning tasks than their less-educated colleagues and show a higher level of confidence than their less-educated colleagues (Baron, 2011). Research also shows that low-skilled employees can reach the same level of confidence if they perceive more support from peers and supervisors (Baron, 2011). Thus, the behavior of FSA’s leaders should aim to reconcile rather than exploit these differences. This suggests that managers should formulate a more strategic approach to restructuring the work group to reconcile differences in self-confidence that stem from differences between education levels of those in the work group.

In addition, research indicates that employees often lack the necessary information to make rational decisions about training because of the complexity of the training system (Miller, 2011). This complexity prevents the employee from grasping all the relevant information and evaluating the cost and benefits of the training. In such cases, peers serve as an important source of information about the payoffs of training participation by “simplifying the subjective calculation of the utility of the training opportunity” (Baron, 2011, p. 65). Therefore, the implication of this research is that peers can act as a positive frame of reference for decision making regarding training and maintaining employability. One final implication of this study is that supervisors should model behaviors that are aligned with the agency’s values and culture related to participation in training and continuous learning. Next, I discuss the implications for education policy and research.

Implications for Education Policy and Research

FSA’s learning coupon represents an educational opportunity to acquire new skills and become successful in the workplace. Although studies have provided insights into the conditions that lead to educational success and failure, there is less research regarding the conditions that foster educational opportunity (Coleman, 1975). By opportunity, I mean insights into the set of circumstances (i.e., context) that make it possible for one to participate in further training. For example, an individual's exposure and experiences with education including the quality of their teachers, the rigor of the curricula they study, their teachers’ expectations, and their parents’ socioeconomic status and involvement in their education are all contextual factors that can shape an individual’s perception of a learning opportunity (Baron, 2011). Therefore, educators should conduct

research and make policy with the understanding that learning opportunities are perceived and defined by social constructs. This social learning framework will allow researchers and policy makers to view the choice to participate in education as one mediated by an individual's perceived self-efficacy and contextual factors that determine how favorable the environment is for promoting participation (Argyris, 1977). Next, I discuss the study's limitations.

Limitations

One of the limitations of this study is the conceptualization of the peer effect. In this study, a peer was defined as an employee who shares the same supervisor. However, there might be other ways in which co-workers form peer groups. For example, a peer group might also be formed on the basis of any number of criteria, including age, race, seniority in the agency, gender, and level of education. Employees might seek out similar peers based on any of these criteria. Thus, the peer construct is limited and prohibits the exploration of how self-identification with others might also influence individual participation in the learning coupon at FSA. Another limitation of this study is that evidence did not exist to indicate whether the peer affiliations were strong and fixed or whether they were weak and loose. Knowing the length of time and frequency of interaction with peers might have been useful in understanding the impact of these factors on individual participation in the learning coupon at FSA.

Another limitation is with the data. The original database contained 16,000 records on employee participation. However, the data were often incomplete, with limited information about the participants. For example, information about sex, age, grade level, level of education, and type of learning activity was incomplete or

unavailable from 2007 to 2008, suggesting that FSA might have had an inadequate system for managing and reporting the data on participation. The inadequacies of FSA's data-collection process were further evidenced in the fact that the type of data that FSA collected each year changed over time, which made it impossible to identify significant trends in the data. Furthermore, opportunities to participate in the learning coupon might have occurred more than once a year, but records indicate that data were collected once during the 2007–2008 fiscal year. There might have also been differences in the accuracy of the data across business units, making it difficult to obtain stable reliable estimates of individual participation.

Future Research

Additional research on the learning coupon at FSA might involve examining the effects of a host of demographic variables on participation, including age, position tenure, gender, job classification, education level, and/or work region. In previous research studies on workplace learning, these variables have been shown to correlate with motivational patterns and/or participation levels (Boshier & Collins, 1983; Darkenwald & Valentine, 1985; Facticeau, Dobbines, Russell, Ladd, & Kudisch, 1995; Noe & Wilk, 1993). The remainder of this section will address these demographic variables.

In one research study, it was hypothesized that mid and late career workers have less need to be involved in training and development activities because they have been seen as having mastered their trade (Maurer et al., 2003). This, in turn, has been hypothesized to have a negative effect on the support provided to older workers (Maurer, 2001). Thus age (much like education level, as discussed previously) could affect a

manager's perceptions of an older employee's motivation and ability to learn and thus limit opportunities and support (Colquitt et al., 2000).

Related to workers' age is their position tenure, a measure of the time spent in the current and similar previously held positions. Research indicates that position tenure might be correlated with age, but might also have an independent influence on participation resulting from the decreasing need for learning as one gains experience within a position (Kremer, 2005). Findings by these researchers beg further research at FSA to determine whether correlations exist among age, position, tenure, and training participation levels. Gender differences in workplace learning have also been explored. Differences in participation are attributed to the different career paths or the "glass ceiling" effect—perceived limitations that are distinguished from formal barriers to advancement, such as education or experience requirements (Mathieu & Martineau, 1997; Noe, Wilk, Mullen, & Wanek, 1997; Tharenou, 2001). Research at FSA on gender participation could uncover differences in levels of organizational support by gender as well as differences in perceived professional advancement options for males and females. The last demographic variable to consider exploring is physical location. Conceivably, physical location could affect proximity to learning resources and the level of influence local peers and management might have on another employee. Research indicates that the greatest differences in participation in workplace learning are likely to be between an organization's headquarters or main location, remote locations, and possibly smaller locations (Clark et al., 1993). Conducting research to test Clark et al.'s findings could add further insights into training participation at FSA.

A separate line of research should explore the extent to which past experiences with FSA's training initiatives affect current perceptions of and participation in training initiatives. In previous years, employees and supervisors in particular have complained of poor instructional quality, less than rigorous content, and poor administration of training activities. Research shows that previous experiences with learning initiatives can shape an individual's current expectation of learning opportunities (Tharenou, 2001). Another opportunity for FSA is to validate the effect of union membership on individual participation given the fact that existing research suggests that union membership has a positive effect on workers' participation in education and training activities (Livingstone & Raykov, 2005).

The final area of research worth studying is how power affects individual perception and motivation to participate in the learning coupon. Research shows that power resides among peer groups and influences workplace behavior. Power has also been associated with perceived efficacy and has been shown to lead to positive or negative consequences (Kipnis, 1972; Ng, 1980). This research related to power should stimulate discussion that leads FSA's leaders to a better understanding of how power is organized within relationships and group contexts. Finally, the true intention of the learning coupon initiative was to promote more self-directed learning at FSA. Therefore, future investigations should seek to identify the personal and contextual factors that foster self-directed learning behavior.

Summary and Conclusion

To begin, as a direct result of the 50% level of participation in the learning coupon at FSA, this quantitative correlational study asked whether peer and supervisors'

participation influenced individual participation. The theoretical framework and literature on social learning theory implied—as did our hypotheses—that the correlation among peer, supervisors', and individual participation would be positive. However, surprisingly, peer participation and individual participation were inversely correlated. In this chapter, I revisited four concepts from social learning theory: outcome expectation, perceived self-efficacy, goal setting, and self-regulation. I discussed how these concepts relate to each other and work collectively to influence individual behavior.

The examples I provided illustrate that an employee's perceived outcome—a benefit or a consequence—of training could affect the decision to participate in training. This relates back to the discussion of expectancy in the literature review, where individual action depended upon the expected value of the training. However, I also explained that researchers are less certain that individual decisions to participate in further training are calculated by cost–benefit analysis and suggest that social and political relationships are as important in decision making (Milliken, Morrison, & Hewlin, 2003). My examples demonstrate that self-efficacy, an antecedent of motivation, could be influenced by relationships with peers and supervisors, particularly when there is uncertainty or when the decision making is unusually complex. Research showed that peers are an important source of information for individuals to learn about the potential payoffs of participation in training (Baron, 2011).

Related to outcome expectation was goal setting. Research suggests that employees with high learning goals have high levels of perceived behavior control over training outcomes (Dweck & Leggett, 1988). Thus, these employees are more motivated to participate in training (Baron, 2011). The last of Bandura's (1977) social learning

concepts is self-regulation—namely, the ability of an individual to manage and control his or her own learning behaviors. Research illustrates that individual employees are less inclined to activate the cognitive processes for self-regulation if they have low self-efficacy and unclear goals (Bandura, 1977). Outcome expectation, perceived self-efficacy, goal setting, and self-regulation can all be considered factors unique to each person. Individual differences in any of these cognitive processes could explain the inverse relationship between peer and individual participation. I also explained that employee awareness, value congruity, perceptions of trustworthiness, and perceived occupational support have positive correlations with employee participation. Employees might have failed to imitate the supervisor's behavior due to perceived imbalances in any of these factors.

This chapter also discussed the role of contextual factors, including group size, frequency of communication, and interpersonal relationships with peers and supervisors, in shaping individuals' participatory behavior at FSA. I gave several examples of how context and perception can also influence individual behavior. In one example, I explained how perceptions and interpretations of work situations can affect an individual's self-efficacy and motivation to participate in training. In another example, I illustrated how an employee's perception of him- or herself and others could be prone to error and bias. Tendencies to self-enhance or self-doubt can permeate an individual's perception of his or her ability to succeed in training. Overall, I argued that interpersonal relationships could serve as a frame of reference for allowing individuals to make sense of their experiences. Therefore, the norms and expectations that individuals hold for

themselves and for others are important to consider when understanding the choice to participate in further training.

The implications for FSA and for education policy and research are (1) to recognize peers as an authentic form of organizational leadership; (2) to train supervisors how to foster a positive training climate by sending clear messages about the value of further training; and (3) to encourage education policy and research specialists to view educational opportunity from the perspective of social learning, as this gives them more authority in developing incentives to improve imbalances in socioeconomic status, experience with education, and exposure to quality teachers. The limitations of the study include (1) the narrow definition of peer group and (2) the incomplete and limited data. Finally, this chapter suggested that further research examine participation trends across demographic variables, such as age, position tenure, gender, job classification, education level, and/or work region. Previous studies on workplace learning have demonstrated strong correlations between these demographic variables and participation. The same might be true for FSA. Other areas of suggested research include (1) the extent to which past experiences with FSA's training initiatives affect current perception of and participation in training initiatives; (2) the effect of union membership on individual participation; and (3) how power affects individual perception and motivation to participate in the learning coupon.

In conclusion, the findings of this dissertation raise many questions about how context shapes individual decision making and participation in further training. The research demonstrates the need for more empirical evidence to validate how the perception of self-efficacy and motivation to participate in training can be affected by

peers and supervisors. Finally, this study advocates viewing educational opportunity and choice not simply as a function of individual preferences, but as a function of environmental favorability. Overall, this study represents another step forward by adding significant detail to the literature to illustrate how personal, contextual, and social environments influence participation in workplace education and professional development.

Appendix A
Descriptive Statistics Table

Level – 1 Descriptive Statistics					
Variable Name	N	Mean	SD	Minimum	Maximum
Participation Other_PA	1864	0.49	.50	0.00	1.00

Level – 2 Descriptive Statistics					
Variable Name	N	Mean	SD	Minimum	Maximum
Sup_PART	212	0.36	.48	0.00	1.00

Appendix B

Unconditional Model HLM Results

Program: Empty model.txt
 Authors:
 Publisher: HLM 6 Hierarchical Linear and Nonlinear Modeling
 Stephen Raudenbush, Tony Bryk, & Richard Congdon
 Scientific software International, Inc. (c)2000
 techsupport@ssicentral.com
 www.ssicentral.com

 Module: HLM2.EXE (6.00.24266.1)
 Date: 17 July 2012, Tuesday
 Time: 9:38:34

SPECIFICATIONS FOR THIS NONLINEAR HLM2 RUN

Problem Title: no title

The data source for this run = Training.mdm
 The command file for this run = whlmtemp.hlm
 output file name = C:\Documents and
 Settings\Dennis Kivlighan\Desktop\Jill
 Robinson\hlm2.txt
 The maximum number of level-1 units = 1864
 The maximum number of level-2 units = 212
 The maximum number of micro iterations = 14
 Method of estimation: restricted PQL
 Maximum number of macro iterations = 100

Distribution at Level-1: Bernoulli

Weighting Specification

	Weighting?	weight variable Name	Normalized?
Level 1	no		
Level 2	no		
Precision	no		

The outcome variable is PARTICIP

The model specified for the fixed effects was:

Level-1 coefficients	Level-2 Predictors
INTRCPT1, 80	INTRCPT2, GOO

The model specified for the covariance components was:

 Tau dimensions
 INTRCPT1

Summary of the model specified (in equation format)

 Level-1 Model

Prob(Y=1/B) =

Empty model.txt

$$\log[P/(1-P)] = 80$$

Level-2 Model

$$80 = GOO + UO$$

Level-1 variance = $1/[P(1-P)]$

RESULTS FOR NON-LINEAR MODEL WITH THE LOGIT LINK FUNCTION: Unit-Specific Mo
(macro iteration 977)

Tau
INTRCPT1,80 0.00013

Tau(as correlations) INTRCPT1,80 1.000

Random level-1 Coefficient Reliability estimate

INTRCPT1,80 0.000

The value of the likelihood function at iteration 2 = -2.646164E+003
The outcome variable is PARTICIP

Final estimation of fixed effects: (Unit-specific model)

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
INTRCPT1,80					
INTRCPT2,GOO	-0.040776	0.046345	-0.880	211	0.380

Fixed Effect	Coefficient	odds Ratio	confidence Interval
For INTRCPT1, 80			
INTRCPT2, GOO	-0.040776	0.960044	(0.876,1.052)

The outcome variable is PARTICIP

Final estimation of fixed effects
(Unit-specific model with robust standard errors)

Fixed Effect	Coefficient	Standard Error	T-ratio	Approx. d.f.	P-value
For INTRCPT1, 80					
INTRCPT2, GOO	-0.040776	0.011579	-3.522	211	0.001

Fixed Effect	Coefficient	Odds Ratio	Confidence Interval
For INTRCPT1, 80			
INTRCPT2, GOO	-0.040776	0.960044	(0.938,0.982)

Emptymodel.txt

Final estimation of variance components:

RandomEffect		Standard Deviation	variance Component	df	Chi-square	P-value
INTRCPT1,	u0	0.01151	0.00013	211	11.54311	>.500

Appendix C

Conditional Model HLM results

Program: HLM 7 Hierarchical Linear and Nonlinear Modeling
Authors: Stephen Raudenbush, Tony Bryk, & Richard Congdon
Publisher: Scientific Software International, Inc. (c) 2010
techsupport@ssicentral.com
www.ssicentral.com

Module: HLM2S.EXE (7.00.21103.1002)
Date: 27 February 2013, Wednesday
Time: 9:21:54

Specifications for this Bernoulli HLM2 run

Problem Title: no title

The data source for this run = C:\Documents and Settings\Dennis Kivlighan\Desktop\Jill
Robinson\New analyses\Training_new.mdm

The command file for this run =

C:\DOCUME~1\DENNIS~1\LOCALS~1\Temp\whlmtemp.hlm

Output file name = C:\Documents and Settings\Dennis Kivlighan\Desktop\Jill
Robinson\New analyses\hlm2.html

The maximum number of level-1 units = 1864

The maximum number of level-2 units = 212

The maximum number of micro iterations = 14

Method of estimation: restricted PQL

Maximum number of macro iterations = 100

Distribution at Level-1: Bernoulli

The outcome variable is PARTICIP

Summary of the model specified

Level-1 Model

$$\begin{aligned}\text{Prob}(PARTICIP_{ij}=1|\beta_j) &= \phi_{ij} \\ \log[\phi_{ij}/(1 - \phi_{ij})] &= \eta_{ij} \\ \eta_{ij} &= \beta_{0j} + \beta_{1j}*(OP_D50_{ij})\end{aligned}$$

Level-2 Model

$$\begin{aligned}\beta_{0j} &= \gamma_{00} + \gamma_{01}*(SUP_PART_j) + \gamma_{02}*(SIZE_j) \\ \beta_{1j} &= \gamma_{10} + \gamma_{11}*(SUP_PART_j) + \gamma_{12}*(SIZE_j) + u_{1j}\end{aligned}$$

OP_D50 has been centered around the grand mean.

SIZE has been centered around the grand mean.

$$\text{Level-1 variance} = 1/[\phi_{ij}(1-\phi_{ij})]$$

Mixed Model

$$\begin{aligned}\eta_{ij} &= \gamma_{00} + \gamma_{01}*SUP_PART_j + \gamma_{02}*SIZE_j \\ &+ \gamma_{10}*OP_D50_{ij} + \gamma_{11}*SUP_PART_j*OP_D50_{ij} + \gamma_{12}*SIZE_j*OP_D50_{ij} \\ &+ u_{1j}*OP_D50_{ij}\end{aligned}$$

The value of the log-likelihood function at iteration 11 = -8.214201E+002

Results for Non-linear Model with the Logit Link Function

Unit-Specific Model, PQL Estimation - (macro iteration 14)

$$\begin{aligned}\tau \\ OP_D50,\beta_1 & 20.32350\end{aligned}$$

Random level-1 coefficient	Reliability estimate
OP_D50, β_1	0.376

The value of the log-likelihood function at iteration 2 = -2.092512E+003

Final estimation of fixed effects: (Unit-specific model)

Fixed Effect	Coefficient	Standard error	<i>t</i> -ratio	Approx. <i>d.f.</i>	<i>p</i> -value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	0.341200	0.332689	1.026	1649	0.305
SUP_PART, γ_{01}	-0.175872	0.433865	-0.405	1649	0.685
SIZE, γ_{02}	-0.021088	0.026564	-0.794	1649	0.427
For OP_D50 slope, β_1					
INTRCPT2, γ_{10}	-8.229364	0.772540	-10.652	209	<0.001
SUP_PART, γ_{11}	1.317141	1.054882	1.249	209	0.213
SIZE, γ_{12}	0.209011	0.060501	3.455	209	<0.001

Fixed Effect	Coefficient	Odds Ratio	Confidence Interval
For INTRCPT1, β_0			
INTRCPT2, γ_{00}	0.341200	1.406635	(0.732,2.702)
SUP_PART, γ_{01}	-0.175872	0.838725	(0.358,1.965)
SIZE, γ_{02}	-0.021088	0.979132	(0.929,1.032)
For OP_D50 slope, β_1			
INTRCPT2, γ_{10}	-8.229364	0.000267	(0.000,0.001)
SUP_PART, γ_{11}	1.317141	3.732735	(0.466,29.885)
SIZE, γ_{12}	0.209011	1.232459	(1.094,1.389)

Final estimation of fixed effects

(Unit-specific model with robust standard errors)

Fixed Effect	Coefficient	Standard error	<i>t</i> -ratio	Approx. <i>d.f.</i>	<i>p</i> -value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	0.341200	0.243701	1.400	1649	0.162
SUP_PART, γ_{01}	-0.175872	0.311697	-0.564	1649	0.573
SIZE, γ_{02}	-0.021088	0.018363	-1.148	1649	0.251
For OP_D50 slope, β_1					
INTRCPT2, γ_{10}	-8.229364	0.711624	-11.564	209	<0.001
SUP_PART, γ_{11}	1.317141	1.029935	1.279	209	0.202
SIZE, γ_{12}	0.209011	0.052994	3.944	209	<0.001

Fixed Effect	Coefficient	Odds Ratio	Confidence Interval
For INTRCPT1, β_0			
INTRCPT2, γ_{00}	0.341200	1.406635	(0.872,2.269)
SUP_PART, γ_{01}	-0.175872	0.838725	(0.455,1.546)
SIZE, γ_{02}	-0.021088	0.979132	(0.944,1.015)
For OP_D50 slope, β_1			
INTRCPT2, γ_{10}	-8.229364	0.000267	(0.000,0.001)
SUP_PART, γ_{11}	1.317141	3.732735	(0.490,28.451)
SIZE, γ_{12}	0.209011	1.232459	(1.110,1.368)

Final estimation of variance components

Random Effect	Standard Deviation	Variance Component	<i>d.f.</i>	χ^2	<i>p</i> -value
OP_D50, u_i	4.50816	20.32350	209	1098.97662	<0.001

Results for Population-Average Model

The value of the log-likelihood function at iteration 2 = -2.389159E+003

Final estimation of fixed effects: (Population-average model)

Fixed Effect	Coefficient	Standard error	<i>t</i> -ratio	Approx. <i>d.f.</i>	<i>p</i> -value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	0.148008	0.127727	1.159	1649	0.247
SUP_PART, γ_{01}	-0.103783	0.173063	-0.600	1649	0.549
SIZE, γ_{02}	-0.011453	0.011607	-0.987	1649	0.324
For OP_D50 slope, β_1					
INTRCPT2, γ_{10}	-5.593590	0.491128	-11.389	209	<0.001
SUP_PART, γ_{11}	1.017986	0.778896	1.307	209	0.193
SIZE, γ_{12}	0.190406	0.049180	3.872	209	<0.001

Fixed Effect	Coefficient	Odds Ratio	Confidence Interval
For INTRCPT1, β_0			
INTRCPT2, γ_{00}	0.148008	1.159522	(0.902,1.490)
SUP_PART, γ_{01}	-0.103783	0.901421	(0.642,1.266)
SIZE, γ_{02}	-0.011453	0.988612	(0.966,1.011)
For OP_D50 slope, β_1			
INTRCPT2, γ_{10}	-5.593590	0.003722	(0.001,0.010)
SUP_PART, γ_{11}	1.017986	2.767615	(0.596,12.858)
SIZE, γ_{12}	0.190406	1.209741	(1.098,1.333)

**Final estimation of fixed effects
(Population-average model with robust standard errors)**

Fixed Effect	Coefficient	Standard error	t-ratio	Approx. d.f.	p-value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	0.148008	0.048968	3.023	1649	0.003
SUP_PART, γ_{01}	-0.103783	0.059501	-1.744	1649	0.081
SIZE, γ_{02}	-0.011453	0.004253	-2.693	1649	0.007
For OP_D50 slope, β_1					
INTRCPT2, γ_{10}	-5.593590	0.394292	-14.186	209	<0.001
SUP_PART, γ_{11}	1.017986	0.641343	1.587	209	0.114
SIZE, γ_{12}	0.190406	0.036796	5.175	209	<0.001

Fixed Effect	Coefficient	Odds Ratio	Confidence Interval
For INTRCPT1, β_0			
INTRCPT2, γ_{00}	0.148008	1.159522	(1.053,1.276)
SUP_PART, γ_{01}	-0.103783	0.901421	(0.802,1.013)
SIZE, γ_{02}	-0.011453	0.988612	(0.980,0.997)
For OP_D50 slope, β_1			
INTRCPT2, γ_{10}	-5.593590	0.003722	(0.002,0.008)
SUP_PART, γ_{11}	1.017986	2.767615	(0.781,9.803)
SIZE, γ_{12}	0.190406	1.209741	(1.125,1.301)

Appendix D

Executive Order No. 13111

Presidential Documents

Title 3—

Executive Order 13111 of January 12, 1999

The President

Using Technology To Improve Training Opportunities for Federal Government Employees

Advances in technology and increased skills needs are changing the workplace at an ever increasing rate. These advances can make Federal employees more productive and provide improved service to our customers, the American taxpayers. We need to ensure that we continue to train Federal employees to take full advantage of these technological advances and to acquire the skills and learning needed to succeed in a changing workplace. A coordinated Federal effort is needed to provide flexible training opportunities to employees and to explore how Federal training programs, initiatives, and policies can better support lifelong learning through the use of learning technology.

To help us meet these goals, I am creating a task force on Federal training technology, directing Federal agencies to take certain steps to enhance employees' training opportunities through the use of training technology, and an advisory committee on the use of training technology, which also will explore options for financing the training and post-secondary education needed to upgrade skills and gain new knowledge.

Therefore, by the authority vested in me as President by the Constitution and the laws of the United States of America, including the Federal Advisory Committee Act, as amended (5 U.S.C. App.), and in furtherance of the purposes of Chapter 41 of title 5, United States Code, the Government Employees Training Act of 1958 (Public Law 85-507), as amended, and Executive Order 11348, "Providing for the Further Training of Government Employees," and in order to make effective use of technology to improve training opportunities for Federal Government employees, it is ordered as follows:

Section 1. *Establishment of the President's Task Force on Federal Training Technology.* (a) The "President's Task Force on Federal Training Technology" (Task Force) is established. The Task Force shall provide leadership regarding the effective use of technology in training and education; make training opportunities an integral part of continuing employment in the Federal Government; and facilitate the ongoing coordination of Federal activities concerning the use of technology in training. The Task Force shall consist of the heads of the following departments and agencies or their representatives: the Departments of State, the Treasury, Defense, Justice, Interior, Agriculture, Commerce, Labor, Health and Human Services, Housing and Urban Development, Transportation, Energy, and Education; the Office of Personnel Management, General Services Administration, Environmental Protection Agency, National Aeronautics and Space Administration, Small Business Administration, and Social Security Administration; a representative from the Small Agency Council; and representatives from other relevant agencies and related Federal councils, as determined by the Chair and Vice Chair of the Task Force.

(b) Within 30 days of the date of this order, the head of each agency or council shall designate a senior official to serve as a representative to the Task Force. The representative shall report directly to the agency head or the President's Management Council member on the agency's or council's activities under this order.

(b) The Director of the Office of Personnel Management (OPM) shall be the Chair and the representative from the Department of Labor shall be the Vice Chair of the Task Force.

(c) The Chair and Vice Chair shall appoint an Executive Director.

(d) The Task Force member agencies shall provide any required staffing and funding, as appropriate.

Sec. 2. Duties of the Task Force. (a) Within 18 months of the date of this order, the Task Force shall develop and recommend to the President, through the Assistant to the President for Economic Policy and the Assistant to the President for Science and Technology, a policy to make effective use of technology to improve training opportunities for Federal Government employees. The policy should promote and integrate the effective use of training technologies to create affordable and convenient training opportunities to improve Federal employee performance. The Task Force shall seek the views of experts from industry, academia, and State and local governments as the Task Force proceeds, as appropriate. Specifically, the Task Force shall:

(1) develop strategies to improve the efficiency and availability of training opportunities for Federal Government employees;

(2) form partnerships among key Federal agencies, State and local governments, businesses, universities, and other appropriate entities to promote the development and use of high-quality training opportunities;

(3) analyze the use of technology in existing training programs and policies of the Task Force member agencies to determine what changes, modifications, and innovations may be necessary to advance training opportunities;

(4) in consultation with the Department of Defense and the National Institute of Standards and Technology, recommend standards for training software and associated services purchased by Federal agencies and contractors. These standards should be consistent with voluntary industry consensus-based commercial standards. Agencies, where appropriate, should use these standards in procurements to promote reusable training component software and thereby reduce duplication in the development of courseware;

(5) evaluate and, where appropriate, coordinate and collaborate on, research and demonstration activities of Task Force member agencies related to Federal training technology;

(6) identify and support cross-agency training areas that would particularly benefit from new instructional technologies and facilitate multiagency procurement and use of training materials, where appropriate;

(7) in consultation with the General Services Administration, the Office of Personnel Management, and the Office of Federal Procurement Policy of the Office of Management and Budget (OFPP), promote existing and new procurement vehicles that allow agencies to provide innovative training opportunities for Federal employees;

(8) recommend changes that may be needed to existing procurement laws to further the objectives of this order and forward the recommendations to the Administrator of OFPP; and

(b) develop options and recommendations for establishing a Federal Individual Training Account for each Federal worker for training relevant to his or her Federal employment. To the extent permitted by law, such accounts may be established with the funds allocated to the agency for employee training. Approval for training would be within the discretion of the individual employee's manager. Options and recommendations shall be reported no later than 6 months from the date of this order.

Sec. 3. Duties of All Federal Agencies. (a) Each Federal agency shall, to the extent permitted by law:

(1) include as part of its annual budget process a set of goals to provide the highest quality and most efficient training opportunities possible to its employees, and a set of performance measures of the quality and availability of training opportunities possible to its employees. Such measures should be, where appropriate, based on outcomes related to performance rather than time allocation;

(2) identify the resources necessary to achieve the aforementioned goals and performance measures articulated in its annual performance plan;

(3) and, where practicable, use the standards recommended by the Task Force and published by the Office of Personnel Management for purchasing training software and associated services; and

(4) subject to the availability of appropriations, post training courses, information, and other learning opportunities on the Department of Labor's America's Learning Exchange (ALX), or other appropriate information dissemination vehicles as determined by the Task Force, to make information about Federal training courses, information, and other learning opportunities widely available to Federal employees.

(b) Each Federal agency, to the extent permitted by law, is encouraged to consider how savings achieved through the efficient use of training technology can be reinvested in improved training for their employees.

Sec. 4. Duties of Specific Federal Agencies. (a) In light of the Office of Personnel Management's responsibility for developing Government-wide training policy, coordinating and managing training policy programs, and providing technical assistance to Federal agencies, the Office of Personnel Management or other appropriate agency as determined by the Task Force shall:

(1) in consultation with the Task Force, the Department of Defense, the National Institute of Standards and Technology, the Department of Labor, and other appropriate agencies as determined by OPM, publish the standards for training software and associated services recommended by the Task Force; and

(2) ensure that qualification standards for civil service positions, where appropriate, reflect standard industry certification practices.

(b) The Department of Labor or other appropriate agency as determined by the Task Force shall, subject to the availability of appropriations:

(1) establish a specialized database for Federal training within the framework of the Department of Labor's ALX, or other appropriate information dissemination vehicles determined by the Task Force, to make information about Federal training courses, information, and other learning opportunities widely available to Federal employees;

(2) establish and maintain a training technology website for agencies to post training needs and to foster communication among the agencies and between public and private sector organizations to identify and meet common needs; and

(3) establish a staffed help desk and technology resource center to support Federal agencies using training technology and to facilitate the development of online training courses.

(c) The Department of Defense or other appropriate agency as determined by the Task Force shall:

(1) in consultation with the National Institute of Standards and Technology, lead Federal participation in business and university organizations charged with developing consensus standards for training software and associated services and lead the Federal review of the standards; and

(2) provide guidance to Defense agencies and advise the civilian agencies, as appropriate, on how best to use these standards for large-scale development and implementation of efficient and effective distributed learning technologies.

(b)) Each Executive department shall designate at least one subject area of training that it will use to demonstrate opportunities in technology-based training and assign an agency leader in the designated area. Leaders in these training technology experiments shall work closely with other agencies with similar training interests. Each Executive department shall develop a plan for measuring and evaluating the effectiveness, cost-effectiveness, and benefits to employees and the agency for each designated subject area.

Sec. 5. *Establishment of Advisory Committee on Expanding Training Opportunities.*

The Advisory Committee on Expanding Training Opportunities (Committee) is established. The Committee shall consist of not more than 20 members appointed by the President from outside the Federal Government, including representatives of the research, education, labor, and training communities, information technology sector, and representatives from other critical sectors. The President shall designate Co-Chairs from among the members of the Committee.

Sec. 6. *Functions of the Advisory Committee.* The Committee shall provide the President, through the Assistant to the President for Economic Policy and the Assistant to the President for Science and Technology (Assistants to the President), with: (a) an independent assessment of:

(1) progress made by the Federal Government in its use and integration of technology in training programs, particularly in the use of voluntary industry consensus-based commercial standards for training software and associated services;

(2) how Federal Government programs, initiatives, and policies can encourage or accelerate training technology to provide more accessible, more timely, and more cost-effective training opportunities for all Americans;

(3) mechanisms for the Federal Government to encourage private sector investment in the development of high-quality instructional software and wider deployment and utilization of technology-mediated instruction so that all Americans may take advantage of the opportunities provided by learning technology; and

(4) the appropriate Federal Government role in research and development for learning technologies and their applications in order to develop high-quality training and education opportunities for all Americans;

(b) an analysis of options for helping adult Americans finance the training and post-secondary education needed to upgrade skills and gain new knowledge. Options for financial mechanisms may include grants, tax incentives, low-interest loans, or other vehicles to make training and post-secondary education accessible to adults throughout their lifetimes; and

(c) advice on other issues regarding emerging technologies in government training and financing training and post-secondary education for adult Americans as specified by the Assistants to the President.

Sec. 7. *Administration of the Advisory Committee.* (a) To the extent permitted by law and subject to the availability of appropriations, the Office of Personnel Management shall provide the financial and administrative support for the Committee.

(b) The heads of Executive agencies shall, to the extent permitted by law, provide to the Committee such information as it may require for the purpose of carrying out its functions.

(c) The Committee Co-Chairs may, from time to time, invite experts to submit information to the Committee and may form subcommittees or working groups within the Committee to review specific issues.

(d)) Members of the Committee shall serve without compensation but shall be allowed travel expenses, including per diem instead of subsistence, as authorized by law for persons serving intermittently in the Government service (5 U.S.C. 5701–5707).

(b) Notwithstanding any other Executive order, the functions of the President under the Federal Advisory Committee Act, as amended, that are applicable to the Committee, except that of reporting to the Congress, shall be performed by the Office of Personnel Management in accordance with guidelines that have been issued by the Administrator of General Services.

(c) The Committee shall terminate 2 years from the date of this order unless extended by the President prior to such date.

Sec. 8. Definitions. (a) As used in this order, the terms “agency,” “employee,” “Government,” and “training” have the meaning given to those terms, respectively, by section 4101 of title 5, United States Code.

(b) The term “technology,” means any equipment or interconnected system or subsystem of equipment that is used in the automatic acquisition, storage, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information, including computers, ancillary equipment, software, firmware and similar procedures, services (including support services), and related resources. For purposes of the preceding sentence, equipment is used by an Executive agency if the equipment is used by the Executive agency directly or is used by a contractor under a contract with the Executive agency that requires the use of such equipment. The term “technology” does not include any equipment that is acquired by a Federal contractor incidental to a Federal contract.

Sec. 9. Judicial Review. This order does not create any enforceable rights against the United States, its agencies, its officers, or any person.



THE WHITE HOUSE,
January 12, 1999.

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