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**MET EXPECTATIONS HYPOTHESIS: THE USE OF DIRECT MEASURES
TO DEVELOP PARTICIPANT SURVEYS**

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Abstract

This study uses met expectations hypothesis, a form of expectancy theory, to develop survey instruments to identify and compare the goals, expectations, and perceived outcomes developers held for the Faculty Development Institute (FDI). Theories including self-perception, and personal recall were also reviewed with regards to how individuals make decisions. The developers had similar expectations for the outcomes during and/or immediately following the initial FDI workshop, but differed in their expectations of the long-term outcomes. The survey instrument can be used within Workforce Development to enhance research efforts with regards to designing and developing evaluation instruments for training programs to successfully achieve the expectations of stakeholders. The use of a training program for faculty on a university campus was a new concept for the institution within this study. The success of the initial program led to continuation of the program.

Introduction

Self-perception theory is a theory that examines how individuals assess themselves when asked to respond to information, situations and circumstances. Bem (1972) identified two postulates that explain self-perception theory: (a) individuals come to “know” their own attitudes, emotions, and other internal states partially by inferring them from observations of their own overt behavior and/or the circumstances in which this behavior occurs; (b) to the extent internal cues are weak, ambiguous, or uninterpretable, the individual is functionally in the same position as an outside observer who must necessarily rely upon those same external cues to infer the individuals’ inner states (p. 2). Individuals also use self-perception to explain their behavior by noting the conditions under which it occurs (Irving & Meyer, 1995). Vroom (1995) states that, “Expectancy theory asserts that human choice is subjectively rational. People do not always make optimal decisions but they do make decisions that they believe to be optimal at the time they make them” (p. xviii). When assessing decisions that have been made by individuals, researchers should consider that the decision made is based upon the person’s self-perception and their expectations at the time of the decision.

This study was designed to develop an instrument to measure the final results of the impact of the training on the initial participants of the Faculty Development Institute (FDI) and their perceptions of the impact of the training on the university in general. To accomplish this, an evaluation of the expectations and goals that were considered by the developers of FDI as they made decisions about the future of their training program was needed. The evaluation of FDI will depend on developers’ recall and their self-perception of their experiences that they can recall from their initial development of the program. The fundamental concepts of personal recall and self-perception theory helped to describe the process that occurred for the developers. They were used to help determine the expectations, goals, and perceived outcomes of FDI as initially implemented.

The importance of this study was to provide detailed, conceptual analysis of how the use of direct measures can be used effectively to design, develop and administer participant surveys. According to Irving and Meyer (1995) there are identified weaknesses within the use of direct measures. This study provides details of how these weaknesses can be avoided to produce solid research instruments that are valid and reliable. The following specific objective guided this study: to develop a research instrument to identify and compare the goals, expectations, and perceived outcomes stakeholders held for FDI. To achieve this objective, the study was guided by the following research questions:

1. What were the goals and expectations of the FDI developers?
2. What were the perceived outcomes for FDI developers?

Theoretical Framework

Porter and Lawler (1968) described the theory of motivation as dealing with attitudes concerning needs, values, and satisfaction. There are many theories that assess needs, values and satisfaction of individuals (Mitchell, 1974; Steers & Porter, 1979; Irving & Meyer, 1995; Vroom, 1964, 1995). Two of the most often-used motivational theories are drive (Zajonc, 1965) and expectancy theory (Vroom, 1964). Both theories focus on the concept that people have behavior response “expectations” or “anticipations” about future events. They indicate that in order for motivation to exist there must be both positive outcomes and some kind of connection between behavior and the outcomes. The differences between drive and expectancy theories

are that expectancy argues that the anticipation of the positively valent outcome functions selectively on actions which are expected to lead to it. Drive theory views the magnitude of goal as a source of general excitement – a nonselective influence on performance (Porter & Lawler, 1968). The drive theory concept of habit strength emphasizes past stimulus-response connections, and thus weights past learning heavily (Zajonc, 1965). Expectancy theory places a greater emphasis upon anticipation of the future than upon past learning (Porter & Lawler, 1968).

Motivation has been studied for many years and there are many theories and definitions of motivation. Historically, psychologists have directed their studies of drive and expectancy towards filling in the missing empirical content of hedonism. As in the hedonistic doctrine, people are assumed to behave in ways that maximize certain types of outcomes (rewards, satisfiers, positive reinforcements, and so on) and minimize other outcomes (punishments, dissatisfiers, negative reinforcements, and so on). However, some of the circularity of hedonism has been overcome by the development of more precisely stated models and by the linking of the concepts in these models to empirically observable events (Vroom, 1995). Motivation has general effects:

1. it increases an individual's energy and activity level;
2. it directs an individual toward certain goals;
3. it promotes initiation of certain activities and persistence in those activities; and
4. it affects the learning strategies and cognitive processes an individual employs (Ormond, 1999).

Expectancy theory is the primary theory on which this study is based. Vroom (1995) defined expectancy "as a momentary belief concerning the likelihood that a particular act will be followed by a particular outcome" (p. 20). Expectancy theory has been around for four decades and is a decision theory of human motivation and choice in the work situation (House, Shapiro, & Wahba, 1974).

The extent to which participants' expectations influenced the outcomes of a program could help answer questions of motivation for participating in a new innovation program. Vroom's model has been used primarily for the prediction of job satisfaction, occupational preference, the valence of good performance; however, it can be used to predict the valence of an outcome (Mitchell, 1974).

Literature Review

Porter-Lawler Expectancy Model

The Porter-Lawler (1968) model has been used primarily to measure supervisor effort, peer effort and self-effort. It is a modification of Vroom's (1964) model and it too is a consideration for this study. This model focused on the value of the reward, the perceived effort required relative to attaining the expected reward, the actual effort, abilities and traits, role perceptions, performance (accomplishment), rewards (fulfillment), perceived equitable rewards and satisfaction (Porter & Lawler, 1968). Porter and Lawler's value of reward variable referred to the attractiveness of possible outcomes to individuals. The major focus of the model is that for any individual at the particular point in time there are a variety of potential rewards to which he/she attaches differential value. The value of the reward or rewards to an individual can be measured using several measures including asking an individual: (a) to make an actual choice among two or more alternatives in a situation in which he anticipates that the attainment of these outcomes will be affected by his behavior; (b) to rank or rate, on an attitude scaling device, the value of different rewards to himself;

or (c) to complete some sort of projective device such as the Thematic Apperception Test (TAT) or a sentence completion test from which some other person (i.e., the tester) infers the values of different rewards for the individual under consideration (Porter & Lawler, 1968; Vroom, 1995).

Porter-Steers Met Expectations Hypothesis

Porter-Steers Met Expectations Hypothesis is the modification of Vroom's Expectancy theory that is most relevant for this study. Porter and Steers (1979) described "three common denominators that characterize motivation: (a) what energizes human behavior; (b) what directs or channels such behavior; and (c) how this behavior is maintained or sustained" (p. 156). In the context of training, this force influences enthusiasm for the training (energizer), keeps attention focused on training per se (director), and reinforces what is learned in training, even in the face of pressure back on the job to discard what has just been learned (maintainer) (Cascio, 1998).

The various theories of motivation also have models that help to explain its characteristics. According to Steers and Porter (1979), the basic building blocks of a model of motivation include: (a) needs or expectations; (b) behavior; (c) goals; and (d) some form of feedback. Porter and Steers were concerned with the potential role that "met expectations" may have on withdrawal behavior of an individual. Their concept of met expectations is described as the "discrepancy between what a person encounters on this job in the way of positive and negative experiences and what he expected to encounter" (Porter & Steers, 1973, p. 152). Using met expectations hypothesis, Porter and Steers (1973) predicted that when an individual's expectations – whatever they are – are not substantially met, his propensity to withdraw would increase. Irving and Meyer (1995) felt that met expectations hypothesis could be tested by utilizing difference scores reflecting the discrepancy between post-entry experiences and pre-entry expectations and found problems related to the difference scores. The difference scores produced artificial relations with outcome variables. The use of direct measures generally requires respondents to indicate the extent to which they perceive that their pre-entry expectations concerning their jobs have been confirmed (Irving & Meyer, 1995). According to Irving and Meyer (1995),

when direct measures of met expectations are used, it is implicitly assumed that respondent perform a mental comparison of their expectations and experiences and that scores on the measure reflect the 'match' between these variables. If this is true, it should be possible to show that direct measures of met expectations reflect independently obtained measures of expectation and experiences approximately equally." (p. 1160)

A weakness of direct measures of met expectations is that it requires individuals to recall their prior expectations after having been on the job for some time. Individual recollections of pre-entry expectations are, sometimes, filtered by more recent experiences and behaviors (Irving & Meyer, 1995).

Victor Vroom pioneered the development of expectancy theory for use in explaining work behavior. Since his initial study, many researchers have used expectancy theory to explain work behavior. Porter worked closely with Vroom and many others to enhance the theory for further use. From their studies many models have been designed, developed and modified to explain expectations, values and instrumentations. Components of Vroom, Porter & Lawler, and Porter & Steers studies are relevant to this study, but the most important component of their research that is useful for this study is the met expectation hypothesis. This study is seeking

perceived outcomes for the individual as it relates to what he/she initially expected, which aligns most closely with the components of met expectation hypothesis.

Personal Recall

The personal recall of the developers of FDI was used in this study during the interview phase. Therefore, it is important to know the accuracy of and how personal memories are formed. The process of personal recall, an instance of long-term, episodic memory, involves two steps: (1) the individual notes his or her present status on the attribute in question; (2) people may invoke an implicit theory of stability or change to guide their construction of the past. Implicit theories are "schema like knowledge structures that include specific beliefs regarding the inherent stability of an attribute, as well as a set of general principles concerning the conditions likely to promote personal change or stability" (Ross, 1989, p. 342).

Weaknesses found with personal recall are that the prior response is likely to be biased when states "(a) have changed and respondents are unaware of the change, (b) have changed and respondents uniformly miscalculate the degree or nature of the change, and (c) are stable and respondents assume that they have changed in a particular fashion" (Ross, 1989, p. 351). Other instances of when consistency bias occurs when using personal recall include:

1. People exaggerated their consistency over time and inappropriately inferred that a prior response followed from their current state;
2. People overestimated the extent to which their present state differed from an earlier state – they inferred a prior response that was too much at variance with their current status; and
3. Evidence was found that linked both of the above mentioned biases to people's implicit theories of stability and change for the attribute in question. (Ross, 1989, p.351).

Consistency within respondents is important and may be biased based upon their ability to recall information; however, researchers may be able to control for some of the bias by testing the consistency across respondents.

Method

This study used mixed methodology: qualitative and quantitative analysis because it allowed the best opportunity to gather the necessary information for designing the research instrument and answering the research questions. The qualitative interview guide allowed the researcher to gain insight and understanding from the perspectives of those who participated in the program's development and to discover the goals and expectations of the developers. Descriptive statistics was used to assess the results of the instrument data. Depending on the research design, quantitative data can be analyzed using appropriate statistical analysis techniques.

The five developers of FDI were interviewed about, and a historical analysis was conducted of documents relevant to the initiation and development of FDI. The source documents used in this study included a FDI notebook obtained from developers and documents found as a result of interviews and university archive searches. The developers in this study were identified as developer 1 through developer 5 to protect their anonymity. Due to the location of the fact and there were only five developers involved, the use of initials would have made the respondents and their responses identifiable.

Reliability and Validity

The reliability and validity of the data in this study was affirmed through the use of triangulation, member checking and participatory or collaborative modes of research (Merriam, 1998). Triangulation involves the use of multiple investigators, multiple sources of data, or multiple methods to confirm emerging findings (Merriam, 1998). Triangulation within this study was conducted using multiple sources of data. The information provided by the developers has been reaffirmed or triangulated through analysis of documents related to the development of FDI and field notes of presentations given by the developers. The responses of the developers have also been compared against one another's and summarized since they were asked the same or very similar questions.

Member checking involves taking data and tentative interpretations back to the individual from whom they were derived and asking if the results are plausible (Merriam, 1998). Member checking was used to allow the developers to review the summary of their responses for accuracy throughout the study. They were allowed to make sure that the researcher conveyed what they meant in their responses. Participatory or collaborative modes of research mean involving participants in all phases of research from conceptualizing the study to writing up the findings (Merriam, 1998). A participatory or collaborative mode of research was used because the researcher met with the developers and obtained their assistance with gathering documents and finding participants throughout the study.

Data Collection Procedures

Semi-structured interviews of the developers were conducted to identify and confirm the original expectations of FDI. The interview guide, developed specifically for this study, used open-ended questions to preclude limiting the interviewees' responses (Seidman, 1998). Each developer was asked to respond to the same questions. The interview narratives were analyzed to identify themes and develop the survey. Proper protocols, as identified by Siedman (1998), were used to maintain confidentiality and anonymity.

Document analysis was used because of the historical nature of the study; events could no longer be observed and informants may not have been able to recall all the events (Merriam, 1998). The historical document analysis was used to confirm the objectives of FDI, and the time frame for objectives as reported by the FDI developers during interviews.

After the development of the survey instrument, the developers were asked to complete the quantitative survey to determine consistency across developer interview responses. The developers held five distinctively different positions within the university; therefore, it was essential to measure the consistency of their responses.

Instrument Development

The literature suggests that expectancy theory surveys be developed using the subject's own outcomes (Mitchell, 1974) in order to provide more reliability and validity to the study. The decision to use the subject's outcomes is most often based on the amount of control that the investigator has over the experimental setting. Vroom's theory is based on a within subjects approach and theoretically that would mean that the subject should be asked to list his/her own outcomes, especially in settings where the experimenter has no control over the outcomes (Mitchell, 1974). One limitation to this approach is that the list of outcomes could be very extensive

and would need to be reduced by the researcher. Another limitation is that subjects may not list negative outcomes, which may be important to the study.

In this study the researcher had some control by interviewing the developers and then developing the survey in order to reduce the list of potential outcomes had it been very extensive and include negative information, if applicable. A review of the literature also identified several considerations in the development of instruments based upon expectancy theory. Mitchell (1974) reviewed 23 studies that used expectancy theory and found few problems with expectancy measures. The most prevalent concerns that he cited were:

1. Investigators listing outcomes instead of each subject using his own outcomes is probably not the most accurate representation of what the theory would suggest. The impact of this problem is unknown.
2. Distinctions between positive and negative outcomes and intrinsic and extrinsic outcomes should probably be included and analyzed separately.
3. Long lists of outcomes, as opposed to short lists, are probably detrimental.
4. Important-unimportant is used most frequently as a measure of valence and yet valence is supposed to reflect anticipated satisfaction. (Mitchell, 1974, p. 1065)

The above concerns were considered in the development of the instruments used in this study. The reliability and validity of the Likert type survey used in this study was evaluated by the dissertation committee and faculty members from the Education Research and Evaluation (EDRE) program within the university's Department of Leadership and Policy Studies. The survey was sent to various individuals for evaluation of readability and usability.

The survey for this study was developed after interviewing the developers and after reviewing the results of the readability and usability evaluation. The process for developing and administering the survey was as follows:

1. Interviewed developers.
2. Analyzed responses to questions as they align with research questions.
3. Developed a scale that is based upon the met expectations hypothesis.
4. Presented survey to committee for review.
5. Presented survey to selected EDRE program faculty for review.
6. Field tested the survey with small group of individuals.
7. Made recommended and necessary changes to survey.
8. Sent letter to subjects informing them of survey.
9. Administered survey to developers and initial participants of FDI and provided them the option of responding electronically, via e-mail, or using a traditional pencil and paper format.

Data Analysis

The constant comparative method was utilized to analyze the data for this study. The researcher constantly compared the interview responses of developers to determine recurring themes within the data. The data was analyzed throughout the interview process. The researcher did not wait until all of the developers had been interviewed to begin the data analysis. The development of categories, properties, and tentative hypotheses through the constant comparative method (Merriam, 1998) allowed for the formation of emerging themes within the data. Once the themes were formed, then additional data was analyzed to support the theoretical framework developed. By constantly analyzing the data and organizing it in a manner that was easily retrievable, the researcher was able to focus more on the content of the data

than on the collection process. This process allowed and encouraged the researcher to focus more on the content of the data than on the collection process.

The quantitative data was analyzed using frequency distribution. The percentage of developers who agreed with each statement derived from the interviews was essential to understanding the consistency with which they all viewed the goals and expectations and outcomes for the program during the development process.

Results

The instrument was developed to measure outcomes during and/or immediately following the initial FDI workshop and long term outcomes as a result of the FDI initiative. Statements within the survey were designed to determine whether they represented an expected outcome of the participant and/or developers and the extent to which the expectation was realized. The participants were asked to base their responses on their expectations prior to attending the initial FDI workshop. Categories for statements were: Outcomes during and/or immediately following initial FDI workshop and long-term outcomes as a result of the FDI initiative. Sample statements included (see table 1):

1. I would earn a state of the art desktop computer, installed in my office, with necessary hardware and software to incorporate computer technology in my teaching.
2. Collaborative communication regarding teaching strategies would be encouraged and facilitated during the workshop among participating faculty.
3. Curriculum change within disciplines would occur through implementation of formal course development for targeted courses.
4. FDI would become a forum for faculty to re-think their teaching strategies and how they were teaching.

Research Question Responses

What were the goals and expectations of the FDI developers?

The goals and expectations of the FDI developers were identified through historical document analysis, interviews with the developers, and a survey of developers. Many of the goals of the developers were found through historical document analysis “The primary goal of the workshops was to provide an opportunity for faculty to reexamine curriculum issues and instructional methods which would allow them to adapt to the changing needs of students” (Faculty Development Project, 1993, p. 1). Another goal of the developers was that the pilot workshops “be scaled up to a University-wide instructional development program which would involve all faculty over a four-year cycle” (Faculty Development Project, 1993, p.1).

The developers themselves identified four specific goals: (a) Increase faculty-driven teaching effectiveness; (c) Increase learning efficiency; (c) Enhance ability of faculty to meet professional responsibilities; and (d) Enhance student opportunities beyond the academy. The goals are outlined such that each goal is associated with the objectives and the tools/processes that were intended to facilitate accomplishment of the goal. Following are the three FDI developers’ goals and objectives that specifically relate to FDI (First Draft Goals and Objectives, n.d, p.1):

1. Increase faculty driven teaching effectiveness.
 - a. Improve quality of interactions among faculty and students.
 - i. Electronic mail.
 - ii. Discussion lists.

- iii. Multimedia tutorials and help sessions.
 - iv. Other instructional communication strategies.
 - b. Foster critical reexamination of teaching methods and curricula at a fundamental level.
 - i. Promote faculty collaboration to develop course materials.
 - ii. Develop courses with more emphasis on active and independent learning strategies.
 - iii. Develop courses with more emphasis on problem-solving, synthesis, and critical thinking skills.
 - iv. Develop courses with more emphasis on collaboration.
 - v. Promote students' ability to construct knowledge and develop insights.
 - c. Generate a sense of excitement about curricular information.
 - i. Deal with more realistic issues by using live databases and real-time simulation.
 - ii. Promote a higher level of understanding of complex phenomena by establishing links between disciplinary information.
 - iii. Involve students with curricular information through hands-on research, analysis and presentation.
- 2. Increase learning efficiency
 - a. Offer 24-hour access to pertinent course information.
 - i. Ability to access materials, assignments, and discussions from dorm room, apartment, or open lab.
 - ii. Ability to e-mail messages to and from faculty and other students from dorm room, apartment, or open lab.
- 3. Enhance ability of faculty to meet professional responsibilities.
 - a. Teaching
 - i. Access to new resources for teaching
 - ii. Access to new resources for testing and grading
 - iii. Ability to creatively present material in new ways
 - iv. Use of courseware and simulations
 - v. Enhance ability to work with diverse group of students
 - vi. Enhance ability to help students experiencing problems
 - vii. Enhance enjoyment of teaching
 - b. General
 - c. Time/meeting management
 - d. Classroom/office management
 - e. Project management (First Draft Goals and Objectives, n.d.)

Interviews with developers confirmed the above-mentioned goals. Examples of statements made by developers that helped to confirm those goals are: proposed our initiating a program that would be aimed at, a faculty development program that would be aimed at 100% of our faculty over several years; and there were two goals: one was to at the end of four years instead of being 60 some percent 100 percent of our faculty were computer and network literate and would have the computer, have access to computers and good network access and the second goal was to see if we couldn't have a more notable percentage that were actually using computers and networking in some way to support teaching ... improve the teaching of whatever discipline they taught... we were at that point moving from a mainframes centralized to a distributed environment and we wanted to use this program to facilitate... to help get faculty that were computer literate that had a dependency on

mainframe computing, we wanted to get those faculty and the applications they were using over into distributed computing environment at the least and in most cases into their personal computing environment. That was the information systems goal that was, it was secondary to the university goals, but you know, I think we played a role in creating all three of those goals. But one had a very information systems orientation to it, the other two were very much university enhancement kinds of goals (Developer 1, personal communication, October 2001).

Tables 1 and 2 show the results of the interviews with the developers and the survey results.

What were the perceived outcomes for FDI developers?

The short and long-term outcomes listed were provided by the developers with historical documents and/or during the interviews. Item 24, Table 2 was of interest to the researcher and was subsequently added to the survey to compare to faculty perception of this point in their survey. The extent achieved items within the table are represented as follows: *FA = Fully Achieved, SA = Somewhat Achieved, NA = Not Achieved, N and Ad = Not Addressed.*

Table 1

Developers' Short-term Goal Expectations and Extent Achieved Frequency

FDI workshop outcomes	Expectation %			Extent Achieved %				
	N	Yes	No	N	FA	SA	NA	NAd
1 All participating faculty would have desktop computers installed in their offices with necessary hardware and software available	5	100		5	100			
2 Collaborative communication regarding teaching strategies would be encouraged and facilitated during the workshop among participating faculty	5	80	20	5	20	80		
3 Participants would receive specific training in how to use computers more effectively in their teaching role.	5	100		5	60	40		
4 Participants would acquire an enhanced understanding of administrative classroom uses of computers	5	80	20	4		100		
5 FDI would enhance participants' knowledge and skills to interact with students outside the classroom using computer technology	5	100		5	40	60		
6 Participants would acquire the knowledge and skills necessary to integrate computer technology into their instruction	5	100		5	40	60		
7 Participants would be encouraged and motivated to re-think how they were teaching	5	100		5		100		
8 Participants would enhance their computer skills to make their work with students more efficient and effective	5	100		5		100		
9 Faculty would become more productive in their jobs as a result of computer technology skills learned in the workshop	5	80	20	5		80		20

Table 1 Continued

FDI workshop outcomes	Expectation %			Extent Achieved %				
	<i>N</i>	Yes	No	<i>N</i>	FA	SA	NA	NAd
10 The computer technology workshop would help participants become more effective in their teaching role	5	100		5	20	80		
11 Following the workshop, participants would receive support with course development techniques	5	80	20	5	20	60		20
12 Students would become more active in, and take more responsibility for, their own learning as a result of participants using computer technology skills to provide information to them inside and outside the classroom	5	80	20	5		80	20	
13 Participants would receive personalized technical support with computer technology use in instruction	5	60	40	4	25	75		
14 Participation in this workshop would be a positive experience for faculty	5	100		5	80	20		
15 Participants' ideas and needs would be addressed within FDI workshops	5	100		5	40	60		
16 More classrooms across campus would be equipped with computer technology	5	60	40	4	50	25	25	
17 Participants would improve their communication with students by learning to use e-mail	5	100		5	80	20		

Note: FA = Fully Achieved, SA = Somewhat Achieved, NA = Not Achieved, NAd = Not Addressed

Table 2

Developers' Long-term Goal Expectations and Extent Achieved Frequency

FDI workshop long term outcomes	Expectation %			Extent Achieved %				
	N	Yes	No	N	FA	SA	NA	NAd
1 The university would provide students adequate access to computers.	5	80	20	5	60	20	20	
2 The university would provide the classroom computer systems needed by faculty to enhance their access to technology	5	60	40	4		75		25
3 All students would have access to computer technology and know how to use it effectively	5	80	20	5	40	40		20
4 Computer literacy requirements would be developed and required of all students across the university.	5	20	80	4		75		25
5 Improved undergraduate student education	5	100		5		100		
6 Curriculum change within disciplines would occur through implementation of formal course development for targeted courses	5	100		5	20	80		
7 FDI would become a forum for faculty to re-think their teaching strategies and how they were teaching	5	100		5	20	80		
8 All faculty would become technology literate and have access to computer technology	5	80	20	5	60	40		
9 Faculty could develop new ways to use technology to help students learn	5	100		5		100		
10 Faculty would be provided with an opportunity to explore new approaches to instruction	5	100		5	40	60		
11 Faculty would transition smoothly from the mainframe environment to personal computing environment	5	60	40	4	50	25		25
12 The mainframe computing system would be replaced with a distributive, personal computing environment	5	80	20	5	40	40		20
13 A majority of faculty would use the computer technology in the classroom as a supplement to their teaching	5	60	40	3	33	67		
14 All faculty would develop higher levels of computer literacy and skills	5	100		5	80	20		
15 The Virginia Tech computer technology infrastructure would become leading edge technology	5	60	40	4	25	75		
16 The number of courses taught online and using distance-learning technology would increase	5	80	20	5	40	60		
17 Enhanced instructional, research, administrative and outreach computing resources would be made available to faculty	5	40	60	4	25	25		50
18 An increased number of students would be served while maintaining the quality of instruction and costs	5	80	20	4	25	75		

Table 2 Continued

FDI workshop outcomes	Expectation %			Extent Achieved %				
	<i>N</i>	Yes	No	<i>N</i>	FA	SA	NA	NAd
19 Virginia Tech would become a national leader in the use and integration of computer technology in teaching and research	5	100		5	60	20	20	
20 Students would develop higher levels of computer literacy and skills	5	60	40	4	50	25		25
21 The quality of interaction among students and faculty would improve	5	100		5	20	80		
22 The emphasis on active and independent learning strategies, problem solving and collaboration would increase	5	80	20	4	25	75		
23 The use of class contact hours as a determinate of credit hours would decrease	5	60	40	4		100		
24 Use of computer technology in instruction would become an important factor in promotion, tenure and salary evaluations	5		100	4			25	75

Note: FA = Fully Achieved, SA = Somewhat Achieved, NA = Not Achieved, NAd = Not Addressed

The expectation and extent achieved percentage are a result of developer survey responses after asking the developers to rate the outcomes. Since each developer was interviewed separately, they did not know who provided which outcome or from which historical document the outcome was derived. The results in the table show that the developers were more consistent in their expectations of the short-term outcomes for the program (e.g. agreed 100% on 10 of 17 items (59%)) but differed more in their long-term expectations (e.g. agreed 100% on 8 of 24 items (33%)).

Although the complete compilation of the developers' perceived outcomes are expressed in the 41 items on the developer survey, many expectations for FDI were verbalized and confirmed during the interview process. Examples of developers' interview responses that expressed their perceived outcomes were:

1. The university would be competitive in the use and integration of technology not just in teaching but in research across the whole institution in the use of administrative systems;
2. Outcome was to improve student to faculty communication, principally through e-mail;
3. Greater faculty understanding and greater faculty use of technology in their courses either as supplements or as online courses;
4. One hundred percent of our faculty technology literate;
5. One hundred percent of our faculty with reasonably ... up-to-date technology; and
6. Uniform, consistent software and hardware upgrades (Developers, personal communication, October 2001).

Discussion

Although there were differences among the developers regarding the extent to which some of the expectations were achieved, they believed that the vast majority of their expectations had been met to some degree. They believed that 16 of the 17 short-term and 21 of the 24 long-term expectations were met to some extent.

Interview findings show that developers saw the opportunity, were in positions to influence change and made the decision to so. FDI evolved out of their decisions. The difference in the developers' perception of the long-term outcome expectations could be explained by the fact that they each came from distinctly different areas and position levels within the university. They may have held their own specific and personal reasons for helping to develop FDI.

The strength of this instrument is shown in the consistency with which the developers agreed with the goals and expectation of the program. The consistency of their responses to the interview guide questions and survey suggests that there was strong communication occurring within the group of developers. Met expectation hypothesis supports that there would be a discrepancy between what the person actually experienced and what the person expected to encounter often occur in such situations (Porter & Steers, 1973). Rogers' (1995) diffusion theory stresses the importance of communication to the success of efforts such as FDI. Diffusion theory played a role in the development of FDI. They appear to have emphasized communication and consistency of effort toward their goals. The historical documents also reflect their emphasis upon documentation of their goals for the program.

The use of qualitative and quantitative research methodology for this study, proved to be advantageous. The researcher obtained information from each method that was complimentary to the other methodology. Had the researcher not interviewed the developers and conducted a historical document analysis, a lot of information may have been missed. A significant portion of the historical documentation was obtained from or via conversation with the developers. Using their interview information as suggested from the Mitchell study (1974) was also invaluable. The researcher was able to triangulate information to provide validity to the findings of the study.

Implications for Workforce Development

The instrument developed in this study is itself an addition to the field of Workforce development. Developers of training programs can make certain that they articulate their expectations to participants by developing valid, reliable instruments that are specific to their instruction and the expectations as expressed by stakeholders. Workforce development currently utilizes many elements of met expectation hypothesis. For example, it is used when new hires are made aware of job requirements. However, there is not as much use of the theory within the design and development of survey instruments, training programs and strategic planning within the field. Researchers and practitioners can use these techniques and methods to better understand the effectiveness of training programs.

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