

## Instructor Learning Styles as Indicators of Online Faculty Satisfaction

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(Submitted April 15, 2011; Revised June 23, 2011; Accepted July 8, 2011)

### ABSTRACT

The purpose of this study was to determine the relationship between instructor learning style/preference and online faculty job satisfaction. Learning style was assessed using the Readiness for Education At a Distance Indicator (READI) now called Smarter Measure. Online faculty job satisfaction was assessed using the National Study of Postsecondary Faculty (NSOPF) job satisfaction questions. Analysis of variance was used to determine whether there was a difference in satisfaction based on individual instructor learning preference(s). The sample population (N=110) consisted of online faculty members in one large community college district. A significant difference in satisfaction with equipment and facilities was found based on instructor learning preference. Implications and recommendations for future practice and research are presented, including considerations for international application.

### Keywords

Faculty satisfaction, Learning styles, Distance learning, Online faculty

### Introduction

Prior to teaching online, many instructors predict future dissatisfaction with the online classroom. These predictions are usually based on perceptions of technical skills, personality type, unfamiliarity, etc. Further, many instructors have not or could never picture themselves enjoying or taking an online class as a student. Like students, they may say, “I just don’t learn that way.” However, these are merely perceptions of potential dissatisfaction.

All of these could indeed be indicators of online faculty satisfaction. However, this discussion has been based on perceived levels of future satisfaction in the online classroom. A more valid and worthwhile discussion would contain actual levels of satisfaction in the online environment following the actual teaching experience. Once the levels are known, comparing them to instructor learning styles would provide deep insight to understanding online faculty satisfaction.

Faculty retention is an issue with which many institutions are concerned. Certainly, job satisfaction contributes to a faculty member’s intent to leave (Rosser & Townsend, 2006). However, with deeper implications, faculty job satisfaction contributes to the quality of work performed (Katzell, Thompson, & Guzzo, 1992). The quality of work performed by the faculty at an institution affects numerous areas. Perhaps the most important stakeholders affected by high faculty performance are the students. The lifeline of any institution is its students; therefore, retaining those who enroll, thus reducing attrition, is one of the most important tasks in maintaining institutional effectiveness.

John Bean (2005) identified one of the nine themes of college student retention as academics. Within this discussion is Bean’s understanding that faculty members are the ones who deliver the institution’s product. He stated that, “A faculty member presents substantive material in a course in a way that promotes or does not promote students to be socialized to academic values and choose a particular major” (Bean, p. 225). For Bean, the quality of the interaction between the student and the faculty member directly contributes to his or her affinity towards the institution. Braxton and Hirschy (2005) also understand the relationship between quality faculty work and student persistence. Based on the work of Vincent Tinto, they suggested that faculty members who involve students in the learning process by engaging them in critical thinking about content contribute to persistence and retention. Engaging students in their academic experience is not only a model of quality teaching, but it is also of extreme importance in commuter campuses such as community colleges. Higher levels of academic involvement leads to higher levels of institutional commitment; institutional commitment in turn leads to persistence (Braxton, & Lien, 2000).

Research on online instructor satisfaction is extremely limited in the field of higher education. Additionally, little to no research has been completed on individual online instructor learning styles. Most of the research on online

instruction has studied the student learner; these studies usually list individual instructor personality, ability, and style as delimitations. To avoid these delimitations, other studies attempt to hold the instructor variable constant; however, this method results in an extremely small sample size, resulting in less significant results. Because this study focused on areas virtually unstudied and undiscovered, the results are extremely helpful. This study should open new avenues for online education research, shifting some of the focus away from the student to the online instructor's readiness.

The findings of this study offer implications in a number of areas. First, the results provide academic departments insight on who to best choose for online course development and teaching. Next, the findings offer suggestions for online faculty training and professional development personnel. Also, it is possible that these findings could offer insight into the realm of student retention strategies (as they relate to quality instruction). Lastly, this will seek to address issues related to faculty retention and intent to leave.

## **Related literature and theoretical framework**

Because of the subjective nature of a large portion of this study, a review of the theoretical literature related to the discussion is necessary. It is important to note that this literature review addresses issues related to satisfaction that are *not* necessarily specific to online instruction. Rather, this review is more concerned with faculty as a whole.

### **Theory**

This discussion is not an attempt to address the question of what it means to be satisfied; rather, this discussion focuses solely on job satisfaction as it relates to faculty in higher education institutions. Ask ten different faculty members what it means to be satisfied with their job in higher education and there will be ten different responses. However, there are several points of consensus on the issue that are necessary to understanding the essence of this mostly subjective concept.

### **Frameworks**

Multiple scholars have developed frameworks for understanding job satisfaction. These frameworks not only address what it means to be satisfied with one's job but also how satisfaction is attained. This section will introduce a brief overview of the primary contributors to job satisfaction theory.

#### **Maslow's hierarchy of needs**

For Maslow (1954), job satisfaction is attained when the job and its environment meet the needs of the individual. Needs are organized hierarchically with physiological, safety, belongingness, and love needs holding the lower levels. The higher levels are filled with needs associated with esteem and self-actualization. The lowest unmet level serves as the primary need; once that need is fulfilled, needs on the next level up surface as the predominant needs. Motivations shift to meet newly surfaced needs as other needs are met.

#### **Vroom's expectancy theory**

Vroom (1964) built upon the work of Maslow, adding a level of human choice to the equation. Here, individuals make decisions about their work based on their perceived abilities to successfully perform the tasks and receive the reward. Decisions are made considering three variables: expectancy (perceived ability), instrumentality (connection between success and reward), and valence (value of the expected reward). When all three variables achieve a high level, motivations rise commensurately, and subsequently, so do performance choices.

## **Herzberg's motivator-hygiene theory/Hagedorn**

In her helpful section in the book she edited, *What Contributes to Job Satisfaction among Faculty and Staff*, Linda Serra Hagedorn (2000) offered a two-construct model for conceptualizing faculty job satisfaction based primarily on the work of Frederick Herzberg; the two constructs that affect job satisfaction were triggers and mediators. Hagedorn defined a *trigger* as a “significant life event that may be either related or unrelated to the job” (p. 6). Because these triggers could affect the entire self and view of life, they could affect job satisfaction subsequently. She defined a *mediator* as a “variable or situation that influences (moderates) the relationship between variables or situations producing an interaction effect” (Hagedorn, p. 6). Mediators included motivators and hygienes (demotivators), demographics, and environmental conditions, while triggers included change in life stage, change in family-related or personal circumstances, change in rank or tenure, transfer to a new institution, change in perceived justice, or change in mood or emotional state. Herzberg's model is helpful for the purpose of categorizing contributors to faculty satisfaction; however, it hardly addresses the difficulty of quantifying the issue.

## **Satisfaction and the institution**

In an effort to quantify faculty satisfaction, Elizabeth Pollicino (1996) presented a paper to the American Educational Research Association in which she sought to intertwine the complexity of satisfaction with professional values as they relate to institutional values. She, therefore, defined *satisfaction* as, “the extent to which faculty perceive that the institution provides a climate ensuring professional autonomy and activity commensurate with specialized expertise” (Pollicino, p. 4). Pollicino's study rested upon the theoretical assumption that “to the extent that faculty perceive institutional support for their professional activities they will likely derive satisfaction from their work and manifest loyalty to their employing institution” (p.3). She, therefore, placed the onus of high satisfaction levels on the shoulders of the institution; she assumed it is the institution's responsibility to foster a “climate conducive to faculty satisfaction” (Pollicino, p. 4). Faculty ownership of the institutional values is the only level at which individual faculty member responsibility lie in her model. In comparison, the Herzberg categorization model places the bulk of the faculty satisfaction responsibility on the individual and his or her life events. While this is not an either/or discussion, it is interesting to note the varying degrees of locus of control (Pollicino removed most of the locus of control from the individual). These two frameworks are not mutually exclusive; Herzberg did include a level of institutional culture within her “mediator” construct. The difference is that Herzberg more closely related satisfaction to personal and partially unpredictable variables, while Pollicino focused on institutional characteristics.

## **Motivation**

As presented by Maslow (1954) and Vroom (1964), essential to the discussion of satisfaction is the concept of motivation. Motivators can be both intrinsic and extrinsic. For example, Pollicino (1996) placed the importance of motivation, as it relates to satisfaction, extrinsically on the institution. As presented by Vroom, the extent to which one is motivated to perform a certain task directly relates to the satisfaction gained from achieving that task. Jerry Berberet (2006), in his contribution to Bataille and Brown's *Faculty Career Paths*, reported that

faculty are motivated most by four factors: 1) the intellectual stimulation they receive from their field of study, 2) the desire to be a member of a meaningful academic community, 3) the goal to make teaching, research, and service contributions, and 4) the wish to be recognized for their contributions. (p. 114)

Berberet reported that the primary factor of the four was intellectual stimulation followed by institutional recognition.

Because satisfaction is so closely related to motivation, further study of motivational constructs and processes is necessary. Robert Blackburn and Janet Lawrence (1995) grouped motivation theories into two categories: noncognitive and cognitive. Further, in an effort to quantify levels of motivation, Blackburn and Lawrence focused on “situations in which there are performance outcomes that define levels of success” (p. 18). For Blackburn and Lawrence, noncognitive theories assumed that behavior can be predicted based on internal needs, personality, and rewards/incentives. Cognitive theories assume that behavior is a result of individual perception of capacity to

respond and the estimation of possible losses and gains. In summary, individual motivation is the balancing of self-efficacy, personality, and perceived rewards; here, Blackburn and Lawrence combined the work of Maslow (1954) and Vroom (1964).

### **Importance of faculty satisfaction**

Up to this point, the importance of high levels of faculty satisfaction within an institution has only been implied. It is easy to assume that institutions want their faculty to be satisfied with their jobs. However, it is necessary to outline the relevance of job satisfaction and what it means for the institution.

### **Intent to leave**

Most of the faculty satisfaction research points to correlations between satisfaction and intent to leave as the primary concern. Logically, institutions desire a high level of faculty retention, especially among those faculty members producing a desired level of quality work (addressed below). In their 2006 study, Rosser and Townsend drew on the work of Herzberg to “develop a model that simultaneously defines multidimensional constructs such as worklife, job satisfaction, and intent to leave” (p. 129). Rosser and Townsend used the results from the National Study of Postsecondary Faculty (NSOPF-1999) as their data source. Of special importance to this study is the construct of worklife; this construct contains three dimensions: technical support, administrative support, and professional development. The conclusion of the study was that worklife factors significantly affect satisfaction and satisfaction negatively affects intent to leave.

### **Quality of work**

In addition to retention, faculty satisfaction affects quality of work; this concept draws upon the discussion concerning motivation presented above. Additionally quality of faculty work is of extreme importance regarding student persistence and retention. Highly satisfied faculty members experience higher levels of motivation to perform their duties. Katzell et al. (1992) conducted research on multiple departments within four organizations ( $n=1,200$ ) and found, while job satisfaction had little or no effect on self-assessed job performance, it significantly influenced job performance as evaluated by superiors ( $r=.17$ ). Katzell et al. also reported a strong correlation between job satisfaction and job involvement ( $r=.37$ ); job involvement influenced level of effort, which in turn strongly correlated with self-assessed job performance ( $r=.49$ ).

### **Faculty satisfaction measures**

During the time of data collection, the NSOPF was the most widely used tool to measure faculty satisfaction in higher education. The survey however has not been administered nationwide since 2004. Other tools, such as the Faculty Survey of Student Engagement (FSSE), offer insight into understanding faculty satisfaction. However, the FSSE simply measures faculty perceptions of student involvement and motivation. Many institutions such as Hudson Valley Community College (2011) have designed internal measures of faculty satisfaction. Hudson Valley’s Online Faculty Satisfaction Survey targets online faculty specifically. Likewise, Bolliger, Doris and Wasilik (2009) developed the Online Faculty Satisfaction Survey (OFSS) to “develop and validate an instrument that can be used to measure perceived faculty satisfaction in the context of the online learning environment” (p. 103). While many other institutions and researchers have developed similar tools, no one instrument has been as widely distributed as the NSOPF.

### **Learning styles/preferences**

Most scholarly research on learning styles focus heavily on the learner. However, little research has been conducted on how an individual faculty member’s learning style affects his or her teaching style. The general assumption is that teachers teach based on their personal learning preferences while attempting to take into consideration the known or

perceived learning style(s), of the students. Veronica and Lawrence (1997) conducted a study to assess the affect of secondary school teachers' learning preferences on class management and teaching methodology in which they found that the majority of teachers in their sample were identified as Reflector learners; these learners tend to demonstrate watching and thinking actions in a learning environment. Veronica and Lawrence recorded that regarding class management, many were comfortable teaching such that they controlled both the information and the way their students were expected to learn. These characteristics fall within the category of the Reflector preference within the Honey and Mumford learning style model.

In the study by Fuller et al. (2000) mentioned above, the Transaction Ability Inventory was implemented to assess the relationship between teaching styles and probability to proceed with online instruction. They found that Abstract Random teaching styles were more conducive to intend to continue teaching online. These teachers incorporate flexibility, appreciate individuality, enjoy group work, and stress the importance of the affective domain. Concrete Sequential learners are less likely to continue teaching online; they use step-by-step processes, require order, use facts and details, incorporate guided practice and tactile kinesthetic pedagogical tools, and focus on the cognitive domain.

### **Online readiness measures**

The READI Assessment is widely used in higher education to assess student readiness for the online environment. Some institutions have internally developed tools designed to assess similar constructs, such as the University System of Georgia's Online Readiness Tool and the University of Illinois at Springville's Technology-Enhanced Learning – Browser test. Some of these internal tools have been adopted by other institutions such as Kerr, Rynearson, and Kerr's (2006) Test of Online Learning Success (TOOLS). It is important to note that most, if not all, of these tools were designed to measure student online readiness, not faculty readiness.

Further, several learning style/preference measures are available, and are usually embedded within the available online readiness tools. In addition to measures based on Howard Gardner's work, tools such as Clifton and Anderson's (2002) Strengthsquest and the Learning Style Inventory based on Kolb's (1984) Experiential Learning Theory (ELT) are also helpful in understanding learning preference. However, these measures also focus on the student rather than the instructor.

### **Current state of knowledge**

As presented above, the current state of knowledge on job satisfaction, both theoretical and research-based, is vast. Likewise, studies pertaining to higher education faculty satisfaction are readily available. Most of these studies incorporate the findings of national surveys such as the Department of Education's Survey of Postsecondary Faculty or the Carnegie Foundation's National Survey of Faculty. A primary area of research that is currently missing in higher education scholarship is that of online or distance learning faculty satisfaction. There is little to no research documenting satisfaction indicators as they relate to online instruction specifically. Surely, based on the presentation of literature and research above, higher education scholarship would benefit from such a study.

Likewise, there is quite a bit of research discussing multiple implications for online instructor learning preferences. However, most of these studies, with a few exceptions, fall short of addressing their relationship to faculty satisfaction, much less online faculty satisfaction. Given the current culture of online learning and instruction and the importance of understanding faculty satisfaction, relationships between the two must be sought and understood.

### **Design**

This was a quantitative study concerned with analysis of variance. The results were used to describe relationships between online faculty learning styles and job satisfaction. Learning style was the independent variable, which was assessed using the READI Assessment. Job satisfaction was the dependent variable and was assessed using the NSOPF job satisfaction questions.

## **Research question**

For the purpose of describing job satisfaction variance among online faculty members, this study was designed to address the following research question:

*Is there a statistically significant difference in online instructor job satisfaction based on individual instructor learning style?*

## **Design and data collection**

This study was limited to online instructors in one large community college district (five campuses). During the time of the study there were approximately 39,000 enrollments at the college with close to 25% of students taking at least one online course. An online instructor was defined as an individual instructor who teaches at least one course in a given semester fully online. Some of these instructors also teach face-to-face during each semester as the institution does not employ full-time online faculty. Each online instructor had completed the same required training and course development program.

## **Assumptions**

There were three primary assumptions of this study. First, every online instructor at the institution has completed the same level of online faculty training provided by the district. This training not only focused on their technical ability to build a course and maintain the course management system, but also on online pedagogical theory and strategies. Second, this study assumed, based on research presented below, that the READI Assessment, although designed to assess online student readiness, accurately assesses online instructor learning styles. Third, this study assumed that the National Study of Postsecondary Faculty job satisfaction questions accurately assess levels of faculty satisfaction.

## **Research respondent selection**

All online instructors at the institution were sent an email informing them that their participation in the study was requested. The email contained a brief introduction and a Web link to access the research Web site. The research Web site was designed to explain the study in detail and provide information regarding access to the study, including the Informed Consent document and login information for the READI Web site. A copy of this Web page can be found in Appendix A. It is important to note, the research Web page instructed each faculty member to complete the survey questions based on their experience teaching online only.

A unique and helpful characteristic of the READI assessment is the ability for clients to add institution specific questions. Therefore, both the READI designed assessment tools and the NSOPF satisfaction questions were completed within the same tool. The results were hosted on the READI Web site. The research Web site instructed each individual to choose an anonymous alias and use it to populate the "name" field of the assessment. This alias was used as each respondent's sole identifier and allowed for complete anonymity and organization for statistical correlation and analysis. The research was conducted during the fall 2008 semester.

## **Sample**

At the time of data collection, there were approximately 230 online instructors teaching for the college. Each online faculty member was invited to participate via email; however, it was very unlikely that every online faculty member would participate. The desired participation level for this study was 45%, or approximately 100 individual online faculty members.

The sample size goal of 100 respondents was accomplished. The total sample size for the study was 110. However, several respondents did not complete the entire study. For the purposes of statistical analysis, missing data were deleted pair-wise.

The results in Table 1 reveal the demographics of the sample. Of the total respondents ( $n=110$ ), 41 were male (approximately 37%), and 69 were female (approximately 63%). Gender was not considered when testing the research questions.

*Table 1. Demographic Results of Sample*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Male	41	37.3	37.3	37.3
	Female	69	62.7	62.7	100.0
	Total	110	100.0	100.0	

### **READI assessment**

The READI Assessment (now called SmarterMeasure) is a tool designed to determine student readiness for online learning. As a current customer of READI, this institution had full access to its use, implementation, and prior research. The institution had already been set up with an online account with READI; administrators are able to direct subjects to the specific institution’s portal of the Web site for online administering of the tool. The tool is designed to assess online learner readiness via six components: learning styles, individual attributes, technical competency, technical knowledge, on-screen reading speed and comprehension, and typing speed and accuracy (READI, 2009). Although the assessment contains six variables, this study focused on the findings related to learning styles only.

### **Learning styles**

The learning styles portion of the READI (2009) was “adapted from the larger (70 item) learning styles instrument administered by <http://www.memletics.com>. The instrument was reduced to 35 items in READI and some of the wording was modified to apply to online courses.” The instrument embedded within the tool is based on the multiple intelligences theory of Howard Gardner. READI breaks the learning styles down as follows:

1. Visual (spatial): You prefer using pictures, images, and spatial understanding.
2. Aural (auditory-musical): You prefer using sound and music.
3. Verbal (linguistic): You prefer using words, both in speech and writing.
4. Physical (kinesthetic): You prefer using your body, hands and sense of touch.
5. Logical (mathematical): You prefer using logic, reasoning and systems.
6. Social (interpersonal): You prefer to learn in groups or with other people.
7. Solitary (intrapersonal): You prefer to work alone and use self-study.

Working within Gardner’s multiple intelligences theory, the idea that individuals possess dominant learning preferences offers deep implications for the use of educational technologies. For example, individuals who are physical (kinesthetic) learners are presumably outside of their learning preference type when teaching an online class. Visual (spatial) learners would potentially find themselves within their preference type when teaching most online courses. Of course, class type, the kinds of instructional methods used and the extent to which online interaction is used will also affect these assumptions.

The questions from which the results are drawn ask questions related to tendencies and preference in learning venues. The results from the learning styles portion of the assessment are presented in graph format so test takers can view not only their dominant learning styles, but also those second, third, and so on. This study only took into consideration the dominant learning style of each individual.

### **READI validity**

In 2007, READI commissioned Atanda Research to conduct a correlational study between READI scores and academic success. They found “forty-two statistically significant correlations between READI variables and measures of academic success and goodness of fit” (READI, 2009).

## **READI reliability**

To verify the consistency of the measurements used in the READI Assessment, in 2008 the Applied Measurement Associates of Tuscaloosa, Alabama, conducted an item reliability test using the Cronbach alpha coefficient. For questions related to technical usage, learning styles and personal attributes they found Cronbach alpha coefficients ranging from .76 to .85. Overall, the reliability results revealed acceptable levels of measurement consistency and reliability.

## **NSOPF instrument**

As presented in the literature review of this study, the bulk of faculty job satisfaction research hinges upon the findings of the NSOPF conducted by the Department of Education. Generally, researchers incorporate the data available from the survey results into their own studies. Because this study was concerned with satisfaction among distance learning faculty only, using the preexisting data from the national survey would have been useless.

The NSOPF contains eight job satisfaction questions. Each of the questions requires one of four responses to the question, “With regard to your job . . . would you say you are very satisfied, somewhat satisfied, somewhat dissatisfied, or very dissatisfied with . . .” The eight questions are as follows:

1. . . the authority you had to make decisions about content and methods in your institutional activities?
2. . . the institutional support for implementing technology-based instructional activities?
3. . . quality of equipment and facilities available for classroom instruction?
4. . . institutional support for teaching improvement (including grants, release time, and professional development funds)?
5. . . your workload?
6. . . your salary?
7. . . the benefits available to you?
8. . . your job at this institution, overall?

Because this study was solely concerned with online teaching satisfaction, the respondents were asked to answer the questions with regard to their online teaching only. Most of the online instructors teach both online and face-to-face.

## **NSOPF validity**

The methodology report for the 2004 NSOPF contains information related to the validity of the instrument. Validity results were reported based on nonresponse bias analysis methods. This analysis reported the “difference between the mean for respondents and nonrespondents multiplied by the weighted nonresponse rate, using the design weights prior to nonresponse adjustment” (Heuer et al., 2005, p. I-3). The results revealed only a 4.3% nonresponse bias for faculty reporting from institutions granting only associates degrees.

## **Findings**

Out of 110 valid responses, approximately 69% of respondents reported that they were very satisfied with the authority they had to make decisions about content and methods in institutional activities while 30% reported that they were somewhat satisfied. Less than 1% reported any level of dissatisfaction.

Approximately 56% of respondents reported that they were *very satisfied* with institutional support for implementing technology-based instructional activities while approximately 33% reported that they were *somewhat satisfied*. Less than 11% reported any level of dissatisfaction.

Approximately 36% of respondents reported that they were *very satisfied* with the quality of equipment and facilities available for classroom instruction while 50% reported that they were *somewhat satisfied*. Less than 14% reported any level of dissatisfaction.

Approximately 22% of respondents reported that they were *very satisfied* with institutional support for teaching improvement while approximately 48% reported that they were *somewhat satisfied*. Thirty percent reported some level of dissatisfaction.

Approximately 46% of respondents reported that they were *very satisfied* with their workload while approximately 31% reported that they were *somewhat satisfied*. Less than 23% reported any level of dissatisfaction.

Approximately 26% of respondents reported that they were *very satisfied* with their salary while approximately 46% reported that they were *somewhat satisfied*. Less than 28% reported any level of dissatisfaction.

Approximately 42% of respondents reported that they were *very satisfied* with their benefits while approximately 48% reported that they were *somewhat satisfied*. Ten percent reported some level of dissatisfaction.

Approximately 61% of respondents reported that they were *very satisfied* overall while approximately 34% reported that they were *somewhat satisfied*. Less than 6% reported any level of dissatisfaction.

### Learning styles frequencies

Out of a total number of 110 respondents, 103 completed the learning style section. Out of a valid 103 respondents, approximately 28% were social learners while approximately 24% were verbal learners. Physical learners made up less than 5% of the sample.

## Results

There was not a statistically significant difference in online instructor satisfaction with the authority to make decisions about content and methods based on individual instructor learning styles.

There was not a statistically significant difference in online instructor satisfaction with technology-based institutional support based on individual instructor learning styles.

The test for homogeneity of variance for satisfaction with equipment and facilities and facilities resulted in a non-significant value ( $p > .05$ ). Therefore the variances were assumed equal and analysis of variance was conducted.

As presented in Table 2, analysis of variance testing resulted in a significant value ( $p < .05$ ). The variance in satisfaction with decisions was explained by learning style. Therefore, the null hypothesis was rejected. A post-hoc test was necessary to further understand the nature of the statistically significant result.

Table 2. ANOVA for Satisfaction with Equipment and Facilities by Learning Style

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	9.184	6	1.531	2.809	.015*
Within Groups	52.311	96	.545		
Total	61.495	102			

The results of the Tukey post hoc test in Table 3 further illustrate the nature of the statistically significant result. Respondents categorized as aural learners reported different levels of satisfaction with equipment and facilities than both physical and social learners.

Table 3. Post Hoc Test for Significant ANOVA Results

(I) Learning Style	(J) Learning Style	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Aural	Visual	-.92424	.37464	.183	-2.0526	.2041
	Verbal	-.94872	.33433	.078	-1.9556	.0582

Physical	-1.43333(*)	.44699	.029	-2.7796	-.0871
Logical	-1.08333	.36909	.061	-2.1950	.0283
Social	-1.25269(*)	.32924	.005	-2.2443	-.2611
Solitary	-.91667	.36909	.177	-2.0283	.1950

\* The mean difference is significant at the .05 level.

The means plot displayed in Figure 1 reveal that aural learners ( $n=6$ ) reported significantly lower levels of satisfaction with the quality of equipment and facilities than both physical ( $n=5$ ) and social learners ( $n=31$ ).

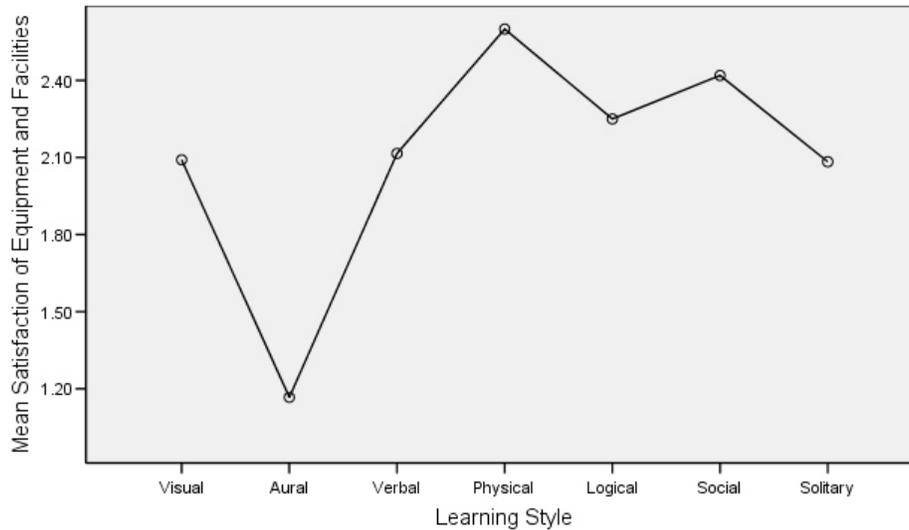


Figure 1. Means plot of satisfaction with equipment and facilities based on learning styles

## Discussion

Although the null hypothesis was rejected for the research question, the findings do not necessarily suggest that individuals with particular learning preferences are more or less satisfied with teaching online. However, the findings do suggest that individuals with particular learning preferences are more satisfied with the quality of equipment and facilities available to them. Aural learners reported significantly lower levels of satisfaction with the quality of equipment and facilities than both physical and social learners. Aural learners rely heavily on sound to stimulate their learning; they learn well in face-to-face settings or through audio presentations. Physical learners learn by doing; generally they are not worried about breaking or damaging equipment or technology when they learn how to use it. Therefore, physical learners do not usually need as much guidance in how to manage equipment. Social learners learn well in groups or with other people; therefore, if they have any difficulty with a piece of equipment they are likely to seek help or guidance from a colleague or expert. Given this explanation, the statistically significance difference in the satisfaction with equipment and facilities between aural learners and both physical and social learners shines some light on the type of satisfaction in question. Based on these findings, it is not likely that the level of satisfaction was with the quality of equipment and/or facilities, but rather with the individual faculty member's ability to manage them. Speculation regarding the quality of the equipment and facilities could not be made based on learning styles. However, it is possible that aural learners, while not understanding how to use a particular piece of equipment, perceive a lower level of quality than those who understand the tool in question. Therefore, given the nature of the research question and the results, it is likely that aural learners require more auditory guidance concerning the management, facilitation, and implementation of available equipment and facilities.

Working within Herzberg's motivator-hygiene framework, equipment and facilities can be viewed as a mediator for aural learners. More specifically, for Herzberg, equipment and facilities would be categorized as hygienes, or demotivators. The reason for this categorization relies heavily on the nature of the aural learner, discussed above.

Further, this finding speaks to Pollicino's (1996) theory where the onus of faculty satisfaction lies with the institution. In this case, for Pollicino, it is the institution's responsibility to provide quality equipment and facilities and adequately train the effectively manage them. This connection contributed to some of the following recommendations.

There was no statistically significant difference in any of the other satisfaction question results based on individual faculty member learning preference. The data from the two satisfaction questions related to technology-based institutional support and teaching support were not homogenous. The results from the remaining five satisfaction questions resulted in non significant differences based on online instructor learning preferences, although the variances in the data were homogenous. Based on these findings, there is no clear individual learning preference related to online instructor job satisfaction. It is also important to note, based on the extent to which satisfaction with work is related to intent to leave and/or perseverance in work, these findings were not congruent with Fuller et al. (2000).

## **Recommendations for further practice**

Given the differing needs of aural learners, administrators, trainers and instructional designers can make educated decisions about how to support aural learners.

### **Accommodating Aural Learners**

To accommodate the aural learners, institutions providing equipment and facilities to instructors should schedule face-to-face workshops or create audio/video tutorials for equipment and facilities training. Face-to-face workshops are fairly simple to organize and usually receive good responses from faculty. Although social learners did not report low levels of satisfaction in this area, these kinds of workshops serve their needs as well. Video tutorials discussing the use of available equipment are vital in the distance learning profession. Faculty members have busy schedules with teaching loads and committee obligations; they do not always have the time to seek out individual assistance with a piece of technology or equipment. Additionally, they do not always have the time to attend workshops. Using a user-friendly software program such as Adobe Captivate or Camtasia to create video and audio tutorials for the management of distance learning equipment and facilities is inexpensive and extremely beneficial. Not only do these kinds of tutorials provide flexible, asynchronous professional development opportunities for faculty, they serve the needs of the less satisfied aural learners as well.

### **Provide Options**

Professionals in faculty development and online instructor training should provide multiple options for training and course development. Options in both training programs and online course development models allow instructors to make choices based on known or perceived strengths or preferences as well as challenge some to choose avenues of less comfort. This could also, according to Vroom's (1964) expectancy theory, assist in individual instructor motivation to persevere through training, course development and online teaching. However, while it is important to provide a trainee-centered program, future online instructors should be encouraged to provide options for their students as well. Therefore, building on these findings and the work of Veronica and Lawrence (1997), instructors should be reminded to use methods and pedagogical tools outside of their preference to accommodate differences in student preference as well.

## **Recommendations for further research**

The results from the two satisfaction questions related to technology based institutional support and teaching support were not homogenous is variance. Therefore, future researchers should conduct this piece of the study again with the goal of receiving a larger sample size. With a larger sample size the results have a higher possibility of achieving homogeneity of variance.

The results of this study suggest that instructor learning preferences should not be taken into consideration when selecting individuals to teach in the online environment, if the purpose is to select individuals who will enjoy teaching online. However, future researchers should create a similar study as this one, except as the dependant variable incorporate online instruction quality instead of satisfaction. It is possible that while job satisfaction is generally not related to learning preference, quality of instruction may be. A future study such as this could link this research with Katzell's et al. (1992) theory about work quality and satisfaction. Future researchers are encouraged to incorporate externally informed benchmarks for online teaching quality.

As the NSOPF is a product of the U.S. Department of Education, its application is designed for an American context. If the constructs upon which the NSOPF was developed are determined to have any obvious American biases, there is potential for this research to lose applicability in an international context. Therefore, further research related to the nature of faculty satisfaction in other cultural settings would be important.

First, future researchers should study the current state of knowledge related to faculty satisfaction to determine the applicability of the constructs contained in the NSOPF. If biases and/or discrepancies are found, researchers should seek out an existing tool designed to measure satisfaction in other cultural settings. Lastly, future research could determine, by way of a comprehensive review of existing international literature, broader constructs related to faculty satisfaction that would be applicable in multiple cultural settings.

This study did not take into consideration demographics such as race, gender or age. Further, this study did not take into consideration discipline affiliation, number of years taught online, employment status (full-time, adjunct, etc.), or highest degree earned. Each of these would be worthy variables to consider in future studies.

Next, further research relating to online instructor learning styles is necessary. As mentioned earlier, much of the research in the area of learning styles and preferences focuses on the student. A thorough study designed to determine whether instructors tend to teach toward their dominant learning style would be worthwhile. Further, one other worthwhile study would be to analyze the relationship between instructor learning styles and their aptitude and/or desire to learn and accept the utilization of a particulate piece of instructional technology or software (learning management system, Web 2.0 applications, etc.). For a theoretical framework, future researchers should analyze appropriateness of incorporating Fred Davis and Richard Bagozzi's Technology Acceptance Model (TAM) as studied by Bagozzi and Warshaw (1992).

Lastly, the distribution of learning styles/preferences for instructors, found in this study, seem to be congruent with that of national averages for student preferences (*Smarter Measure* 2010). However, future studies relating instructor preference to student preference in the online environment should be pursued.

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