

# Meeting the Needs of Visual/Verbal Online Finance Students

Frank Wyrostek, University of St. Francis

## ABSTRACT

*The study focused on the visual and verbal learning styles of online learners. It analyzed the reaction of online finance students to the use of visual and verbal presentations in online finance classes. The empirical results from surveying 220 online finance students produced some insights into the degree in which finance online students respond to verbal/visual teaching methods. Cumulatively, the findings suggest that students in online courses prefer visual and verbal modes of presentation. They view these modes of presentation as providing a more personalized and effective learning environment that reduces their level of anxiety. These results could facilitate a more effective way to design online curriculum to meet the needs of online finance students who will benefit from more visual/verbal teaching techniques.*

## PURPOSE

The purpose of this study was to investigate if using specific presentation techniques, namely Adobe Breeze Presenter and Adobe Captivate II, could serve the verbal/visual needs of online finance students. Equipped with learning style preferences and these programs, we can more efficiently design instructional presentations to serve students with various learning types better.

Think about the way in which a student might remember a phone number. Do they see, in their mind's eye, how the

numbers look on the phone? Or, do they envision the number written on a piece of paper, picturing it exactly as they wrote it down? If so, they might be more of a visual learner. Other students, perhaps, “hear” the number in the way that someone recited it (Jester, 2000). In this case, the student might be an auditory learner. The ways of looking at learning styles uses the different channels of perception (seeing, hearing, and touching/moving) as its model. Although this is a simplistic view of a very complicated subject (the human brain), looking at learning style from a perceptual point of view is a useful place to begin (Miller, 2000).

This study shows that a learning style that favors both audio and visual teaching methods exists. For example, this study shows that using audio-visual pedagogical techniques helped reduce students’ anxiety levels and created a more personal atmosphere for the online class. The benefit of this more personal environment significantly correlated with both mastering the material presented and understanding complex processes involved in finance. In addition, the study points to a potential connection between lowering anxiety levels and higher level of student satisfaction.

This study has two aims. First, it explores the process of integrating the learning style model into designing and developing an undergraduate online course. Second, it provides information on the effects of the course design specifications on students’ learning and their attitude and satisfaction. In pursuing these aims, this study investigates whether verbal/visual learners exposed to a robust audio-visual presentation of material experience a more effective learning experience. Although there have been some attempts to determine attitudes and concerns toward online courses (Wilson, 2001; Gerlich & Wilson, 2004), the literature is still unclear whether the use of newer, user-friendly technology has improved student reception to online classes.

## **INTRODUCTION**

Given that online education enrollment is trending upward (Kyle, Reuben, & Festervand, 2005), issues regarding how individual students interact with and respond to the online environment have not been thoroughly investigated. At the same time, however, these issues are becoming

increasingly important. As institutions offer more online courses in the future, faculty and participating students must provide some assurance that online education will meet student expectations and provide a good educational experience. Students expect an online education designed to meet their individual needs.

Although an enormous body of published research addresses learning styles, few studies have evaluated the assumption that learning style affects learning outcomes. Of those that have, many have found null results, particularly in business (Freeman, Hanson, & Rison, 1998; Huxham & Land, 2000; Karakaya, Ainscough, & Chopoorian, 2001; Tom & Calvert, 1984). Further, many studies have attempted to identify the types of learning styles most common among business students (Loo, 2002; Wynd & Bozman, 1996). This research seems premature, however, given the questionable size of the effect of learning styles on learning outcomes.

“Learning styles” concern the way in which the learner interacts with stimuli in the learning context (Riding & Cheema, 1991). The basic premise is that the way in which people learn differs for different individuals. Different people perceive and process information using different approaches (Kolb, 1984). The result is that course content might be understood and perceived differently by different students. Learning styles may be quite different in a traditional classroom compared to online learning.

One issue that deserves attention is the interaction of learning styles and use of technology in delivering content. The online environment is an untested arena for teaching and learning, and it represents a different learning environment with unique challenges. Because of its relative “newness,” a gap in the literature exists regarding the interaction of learning styles and the online environment for education. Given the delivery method and its growing importance to business education, this study investigates students’ reactions when they are exposed to various audio-visual presentations in the setting of a finance class.

The transformation from traditional classrooms to online environments has altered the learning styles and

interactions between instructors and students (Agres, Edberg, & Igbaria, 1998). It is important, therefore, to investigate the learning styles and preferences of the current generation to incorporate current technology teaching techniques effectively into courses. Today's students live in a visual and interactive environment where using video imaging, touchscreen technology, and texting pervade their activities.

### **Verbal/Visual Learning Styles**

Jester (2000) conceptualized four distinct learning styles, but learners may use some combination of styles in their actual learning (Jester, 2000). The first style is the visual verbal learning style. Although some experts in this field see visual and verbal learning as opposite ends of a continuum, Jester (2000) accepted that these styles might co-occur. Visual verbal learners prefer pictures and diagrams, but learn even more effectively when they write out explanations for the material that they are studying. Jester's (2000) second style, the visual non verbal occurs when learners benefit from pictures and diagrams, but not as much from verbal material. He supports the idea that visual learners can be either visual only or visual and verbal in nature. These two groups have something in common, namely a need for visual enhancements. The tactile kinesthetic learning style is Jester's (2000) defined third style. These learners prefer physically active, hands-on activities. Finally, Jester's (2000) auditory verbal learning style describes learners who benefit from verbal material, learning more when they can listen to spoken words than when they just read material for themselves. This study focuses specifically on the use of audio-visual presentations and attempts to see if they appeal to either verbal, visual, or both verbal/visual learning styles in the online context of a finance class.

Gibson (1998) has challenged distance education instructors to "know the learner" (p. 140). She noted that distance learners are a heterogeneous group and that instructors should design learning activities to capitalize on this diversity (p. 141). Because the dynamic nature of the distance population precludes a "typical" student profile (Thompson 1998, p. 9), instructors who provide online content should continually be aware of this diversity. Inherent

in this diversity is the visual/verbal style present in many learners. Addressing the needs of this learning style is consistent with the challenge to understand the diverse nature of learners online.

### **Matching Learning and Teaching Strategies Online**

Learning styles give instructors information about how individual students prefer to learn and can guide instructors in what instructional designs will support learning preferences (Akdemir & Koszalka, 2008). Learning theory literature has suggested that learning styles and preferences influence the effectiveness with which individuals learn. Firsthand knowledge of students' learning styles and preferences, therefore, can help instructors choose the right methods of instruction for their students (Smith & Dalton, 2005).

Fendler, Ruff, and Shrikhandle (2009) suggested that matching teaching and learning styles is not considered carefully enough when designing coursework. Further, they contend that teaching/learning matching is particularly relevant to online finance coursework.”

Sarasin (1998) noted that professors should be willing to modify their teaching strategies and techniques based on appreciating the variety of student learning styles. He noted, “[Teachers] should try to ensure that their methods, materials, and resources fit the ways in which their students learn and maximize the learning potential of each student” (p. 34). It follows, therefore, that by designing specific audio/visual presentations into an online curriculum, we can directly affect appealing to the verbal/visual learning style of a student and thus enhance their learning experience.

Zamin (2009), in evaluating how online material such as a portfolio simulation is adapted, found one of the main reasons respondents used stock market games include that they illustrate theoretical concepts, integrate information resources into the curriculum, and supplement lecture topics. These benefits, they suggested, would extend to many students, regardless of learning style.

Although it may be difficult to arrive at an agreed upon definition of learning style, most learning style models assume that learning styles are measurable and that mismatching styles with instructional techniques has a major effect on learning. Grasha (2000) noted that learning styles are more like colors on an artist's palette than boxes by which we can categorize learners. It is recognized, therefore, that instructors must appeal to a continuum of certain possible combinations among the verbal and visual preferences of our learners. This study examines if using techniques that feature audio and visual assistance can positively affect learning satisfaction and potential outcomes.

Connecting learning styles and instructional strategies holds great promise for enhancing learner perceptions of their own learning (Claxton & Murrell, 1987). Akkoyunlu and Soyly (2008) emphasized the importance of knowing students' learning styles to design and manage different online environments or other learning materials in various subject areas. Several existing studies have shown that matching learning styles with teaching methods is advantageous to academic achievement (Huey Wen Chou & Wang, 1999; Lipsky, 1989; Smith & Dalton, 2005). If significant numbers students in online classes can self-categorize as visual, verbal, or visual and verbal learners, matching teaching techniques to these styles will then show educational promise. An audio-visual presentation can appeal to any or all of these learning style preferences. In other words, by its nature, an audio-visual methodology inherently encompasses both verbal and visual components.

Recently, Hallock, Satava, and LeSage (2003) suggested that particular learning styles might be better suited for online courses, and that educators should be able to design online curricula that enhance learning based on online students' preferred learning style. Further, particular preferences for learning style have been shown to correlate with academic performance in an online environment (Beadles & Lowery, 2004). By first identifying learning preferences and then appealing to those preferences, instructors can create a more effective online learning environment.

## **Identifying and Addressing Visual/Verbal Learning Styles**

When looking at learning styles in conjunction with learning online, the subject becomes complicated, with a relative dearth of research. Doherty and Maddox (2002) cautioned that “very little quantitative research specific to learning styles and Internet-based methods of instruction has been published, and the results have been mixed” (p. 24). Online learning itself can contain different teaching methods and technologies; thus, different interactions might occur among the teaching method, technology, and learning style in one study compared to another. In order to continue to build a base of information relating to online learning styles we do need to clearly differentiate between types of learning styles.

Visual learners prefer pictures, posters, videos, diagrams, graphs, and flow charts. They favor information that is well spaced, with plenty of pictures. When teaching visual learners, the educator should try to replace words with symbols or initials. Encourage the learner to create a picture in his or her mind related to what you are presenting. Ask students to draw a diagram or graph of what you have taught them and to highlight or color-code important information. When appropriate, incorporate “gestures, picturesque language, and word pictures” (Fleming, 2002, p. 5).

Verbal (auditory) learners respond well to information presented verbally; therefore, they prefer their educator to explain the information. Verbal learners remember interesting stories, examples, verbal analogies, and descriptive language. When teaching aural learners, educators should encourage discussion and sharing of information. If possible, provide a tape recording of the teaching session for the student to review at home (Hamilton, 2005).

Another source of information regarding students’ preferences for either visual or verbal learning are learning objects (Graf & Kinshuk, 2009). Audio-visual presentations are learning objects that combine audio and visual components in analyzing and explaining material. A learning object is a digital resource unit that can be shared to support teaching and learning (Wiley, 2000; Wiley & Edwards, 2002). In the courses surveyed for this study, learning objects

were used extensively. This study specifically examines the effectiveness of these learning objects.

Experienced educators have long supported the notion that individual differences play an important role in learning and instruction. They agree that learners filter instruction through a set of individual lenses (Jonassen & Grabowski, 1993) and tend to manipulate information received in different ways. Learners also achieve understanding at different rates and in various learning contexts (Barbe & Milone, 1981; Como & Snow, 1986; Felder, 1993; Felder & Silverman, 1988; Pask, 1988). Experimental studies have also confirmed educators' beliefs by showing that students' styles of learning and thinking affect their academic achievement (e.g., Kim & Michael, 1995; Saracho, 1993; Zhang, 2002). Although this study uses self-reported feedback, there is evidence that from the students' perspectives, they are at minimum understanding concepts clearly.

A study that confirms this study's findings is the The Student Preparation and Resource Kit (SPARK), which was created to address gaps in knowledge between needed online learning skills and students' knowledge deficits. SPARK has been piloted with two groups of nursing students: 19 undergraduates and 18 graduate students (Hrabe, 2005.) A visual/verbal delivery style helps direct the students' immediate attention, while at the same time giving them a mental image to recall later when they need to apply the information they learned. Where appropriate, animated simulations demonstrated the appropriate steps required for a particular task prior to requiring the user to perform that task.

Overall, data suggest a positive experience with SPARK. Ratings indicate that students felt the CD which incorporated visual/verbal presentations, was easy to use, kept their attention, and enhanced their confidence in learning the skills necessary to navigate online courses. While the lowest rankings indicated that much of the content was not new to the participants, having the information readily available helped refresh and reinforce what they already knew and increased their confidence (Hrabe, 2005).



## **Satisfaction, Accessibility, and Visual/Verbal Techniques**

Part of the sample for this study includes MBA online students from a Managerial Finance section. Online MBA programs are attracting a new market that comprises nontraditional students who work full-time and may be sponsored by an organization (Mangan, 2001; Smith, YEAR). Organizations are also using more online business courses, which professionals view as a viable alternative to face-to-face learning venues (Arbaugh, 2004; Kyle & Festervand, 2005). Difficulties that have arisen with the sudden proliferation of online MBA courses, however, are improper course management and lack of attention to the special needs of online students (Bocchi, Eastman, & Swift, 2004; Mangan, YEAR). More specifically, research on students' satisfaction regarding MBA course delivery is limited, despite a recent increase in research on the topic (Arbaugh, 2002).

Providing students with learning material and activities that fit their preferred ways of learning can make learning more accessible and comfortable for them. Many education theories support this matching hypothesis as stated and described by Coffield, Moseley, Hall, and Ecclestone (2004). Numerous other studies have demonstrated supportive results of this hypothesis (Bajraktarevic, Hall, & Fullick, 2003; Graf & Kinshuk, 2007).

Empirical research also suggests that online student satisfaction with business courses is multifaceted (Arbaugh & Duray, 2002; Bocchi et al., 2004; Marks, Sibley, & Arbaugh, 2005; Webster & Hackley, 1997). More specifically, Webster and Hackley (1997) studied online courses from several disciplines (including business) at six universities. They found multiple aspects of the online experience to be positively related to overall student satisfaction, including high quality technology, high media richness, positive instructor attitude, high instructor control over technology, interactive teaching style, positive classmate attitude, comfort with images, high involvement and participation, cognitive engagement, and positive attitude toward technology. These findings illustrate the importance of the non-instructor elements of online education on student satisfaction. It follows, therefore, that the learning object or presentation

itself must stand on its own as a valuable asset in the array of online course content.

Soloman and Felder's (1997) online Index of Learning Styles (ILS) measures learning preferences across four bipolar preferences: (1) active/reflective; (2) sensing/intuitive; (3) visual/verbal; and (4) sequential/global.

### **Personal Connection Challenge**

The potential for technology to create impersonal relationships is another important problem to address. Not only is personal contact with teachers and peers a vital predictor of student retention, but it plays an important role in students' ability to learn. Personal contact is necessary, but not sufficient for learning to occur. Personal contacts are often embedded within other qualities of good instruction; therefore, the challenge is to determine if online teaching can capture them (Grasha, 2000) For example, consider the intellectual excitement, interpersonal concern, and motivating components of effective teaching identified by Lowman's (1994; 1995) research. Together, these qualities are associated with factors that students both appreciate and need for achievement and motivation. Whether or not they can occur to the same degree in online formats is something we know very little about.

## **METHOD**

### **Project Description**

To date, one of the authors has delivered a Managerial Finance course using Blackboard courseware. This environment allows discussions, assignment submissions via the web, quiz and test management, and email communication with the faculty member. All course material is available online, and in this case, the particular course taught was delivered 100 percent online within the Blackboard environment. The course content area of Blackboard contains weekly chapter sequences with both text and audio-visual lecture material loaded onto a server using the Adobe Breeze and Adobe Captivate 2 Screen Capture programs. Links to these presentations are embedded in a text lecture or as a clickable link in the course content area. The

lectures are sequenced as outlined in both the syllabus and textbook.

The author specifically used this technology to replicate a face-to-face lecture in an online environment. Audio, coupled with a step-by-step animated process reproduces a life-like, chalkboard-type presentation. The purpose of this study, therefore, is to measure improves students' ability to follow the steps involved in solving finance problems and understanding financial concepts because it appeals to specific visual/verbal learning styles. .

The questionnaire used attempted to gain insight into this students' learning preference in the online classes under investigation. Furthermore, visual learners generally perform better on questions related to material that was presented in a visual way using, for example, figures and graphics. In this study's survey, questions addressed these issues directly; indeed, they were designed to ascertain the number of students who consider themselves visual, verbal, or visual /verbal learners.

## **Questionnaire**

The survey (see Appendix A) consisted of 27 questions broken into four sections. Questions 1-21 used a 7-point balanced Likert scale, with 7 being "very strongly agree" and 1 being "very strongly disagree." The last six questions gathered demographic information.

Questions 1-4 were designed to gather information pertaining to whether the student preferred auditory, visual, or both auditory and visual methods in learning. Questions 5-6 determined pre-course anxiety levels.

Questions 7-11 attempted to determine to what extent the audio portions of the lecture presentations were helpful in addressing issues related to anxiety, mastering the material presented, and making the class more personal.

Questions 12-16 were concerned with the visual aspects of the presentations, assessed separately from the audio portions. Again, we attempted to extract to what extent the visual aspects were helpful to the student in dealing with his/her anxiety, mastering the material, and making the class more personal.

Questions 17-21 centered on the combination of the audio and visual aspects of the presentations and to what extent, taken together, these addressed issues relating to anxiety, mastering of material, and personalizing the class.

### **Data Collection**

Students targeted for the survey had taken one of four courses during the fall 2007 and fall 2008 semesters. These courses were Managerial Finance (a graduate business course); Investments (and undergraduate business course); Capital Budgeting (an undergraduate business course); and Principles of Finance (and undergraduate business course) at a private university in the Midwest United States.

These courses were taught using Adobe Breeze, an add-on feature to Microsoft PowerPoint and Adobe Captivate 2, a screen capture program that allows the user (i.e., the instructor) to display his or her computer screen to students viewing the presentation.

Students were strongly encouraged to complete the survey although no incentive related to their grade was used. They were told their participation would be used to help improve the design of online curriculum and in research of the same.

Total number of students surveyed was 220 students completed the survey. The sample for the study encompassed a diverse variety of students. Slightly more than half (52%) of the participants were female. The average participants was 32 years (SD = 11 years). The youngest participants in the study were college freshmen aged 18 years, while the oldest were mature students who were over 50 years old. The average reported annual income was \$72,227. Please note that this average income is computed from a diverse sample that includes mature professionals, who often have triple-digit

incomes, and younger college students, who are earning more modest salaries from part-time jobs.

## **RESULTS**

The main analyses of the present study addressed the following questions: (1) To what extent do students enrolled in an online finance course prefer visual and verbal learning modalities over print? (2) How anxious are students about on-line courses and how might the visual and verbal modalities of online courses reduce their anxiety levels? (3) Do visual and verbal modalities of presentation increase the perceived effectiveness of online learning? and (4) Do visual and verbal modes of presentation increase the personalization of online education? The final section of the analyses examined potential gender differences in visual and verbal learning preferences and differences in anxiety surrounding online instruction. Analyses that examined the first four questions used a one-sample t-test to evaluate the null hypothesis. The respective null hypotheses proposed that students gave a neutral rating to statements concerning learning preferences, anxiety, perceived learning effectiveness, and personalization. The t-test was used to test the alternative hypothesis that students did not give neutral ratings (i.e., ratings of 4) to these items. A significant t-value indicates that the null hypothesis (that the sample was drawn from a population in which the mean rating was neutral) is very improbable. For the final section of the analyses, potential gender differences were tested by using an independent groups t-test to assess the statistical significance of differences between men and women. A significant t-test in this analysis indicates that the null hypothesis (that the sample was drawn from a population in which men and women have equal scores) is improbable.

### **Visual and Verbal Learning Preferences**

Table 1 displays the mean ratings for the items addressing students' preferences for visual and verbal learning modalities. Students generally endorsed items expressing a preference for visual and verbal modalities. Mean ratings of these items were significantly higher than 4 (neutral), suggesting that the students surveyed (i.e., who had

participating in online learning) prefer visual and verbal learning modalities.

### **Anxiety**

Table 2 displays the students' reports of anxiety regarding the online finance course and their perception that visual and verbal modes of presenting information reduced their anxiety. On average, students did not report high levels of anxiety. Two items addressed students' overall level of anxiety about taking an online course. The first of these items had a mean rating only slightly higher than neutral, although this small difference was significantly higher than zero. The second item was not significantly different from neutral. Thus, the null hypothesis that students' are not anxious about taking online courses is retained. Students indicated that the visual and verbal presentation modalities present in online education reduced their anxiety.

### **Learning Effectiveness**

Table 3 presents students' reports of the perceived effectiveness of visual and verbal presentations in supporting and promoting learning. On all items in this section, students' ratings were significantly higher than neutral. In absolute terms, students expressed strong levels of agreement with items stating that visual and verbal presentation assisted their learning.

### **Personalization**

Table 4 presents students' reports of the extent to which visual and verbal presentation created a more personalized learning environment. Students' ratings of all of the personalization items were significantly higher than neutral. In absolute terms, students expressed strong levels of agreement with items stating that the visual and verbal presentation personalized their learning experience.

### **Gender Differences**

Table 5 shows the results of independent groups t-tests assessing the significance of gender differences in

learning preferences and anxiety. Few significant differences were found between males and females. Men indicated significantly stronger agreement with the statement “When doing something new at home or work, I like to see demonstrations.” No significant differences were found, however, between men and women in the remaining two items that assessed preferences for visual presentation. With respect to verbal presentation, men indicated significantly stronger agreement with the statement “I prefer audio methods of course delivery to written material only.” No significant gender differences were found in the other two items, however, which assessed preferences for verbal presentation, nor for the item assessing preferences for combined verbal and visual presentation. Regarding anxiety, men indicated significantly higher levels of anxiety on the item “My level of anxiety in anticipation of taking the required finance course was high for various reasons,” but no significant differences were found in the other item that assessed levels of anxiety.

### **Summary**

Cumulatively, the findings presented above suggest that students’ in online courses prefer visual and verbal modes of presentation. They view these modes of presentation as providing a more personalized and effective learning environment that reduces their level of anxiety. The findings of the present study do not support the view that there are consistent gender differences in preferences for visual or verbal presentation or in levels of anxiety.

### **CONCLUSIONS**

With the rapid proliferation of online course presentation, technological improvements, and rising demand, especially among students who contend with jobs and families, more studies are needed to investigate the relationships and perceptions related to the best method to provide quality teaching-learning opportunities. The main limitation within the data of this study is that questions about

effectiveness dealt with the subject's perception of effectiveness, rather than tested what students actually learned.

It appears that a learning style that favors both audio and visual teaching methods does, indeed, exist. This study showed that using audio-visual pedagogical techniques helped reduce students' anxiety levels and created a more personal atmosphere for the online class. The benefit of this more personal environment significantly correlated with both mastering the material presented and understanding complex processes involved in finance. In addition, the study points to a potential connection between lower anxiety levels and a higher level of student satisfaction.

Although not a synchronous experience, the audio portion of the online course may have a conversational style and thus replicate a live experience. This aspect of the online experience may have brought the students closer to the faculty and their peers by replicating the live presentation of material, just as they would have experienced it in a classroom. An important question to study, therefore, is whether the audio portion combined with visual explanations could lead to improved satisfaction levels for students and reduced feelings of anxiety.

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## APPENDIX A

1. I prefer to listen to music than view a piece of art work.
2. When doing something new at home or work I like to see demonstrations, drawings, slides or posters.
3. I often would rather listen to a lecture than read the material in a book.
4. When learning a new computer application I prefer diagrams or pictures.
5. My level of anxiety in anticipation of taking the required finance course was high for various reasons.
6. I was somewhat apprehensive about taking a finance course partially or totally delivered online.

7. Listening to the audio portions of the presentation reduced my anxiety as it relates to taking this course.
8. I prefer audio methods of course delivery to written material only.
9. The audio portions of the presentations assisted me in the explanation of processes which involved multiple steps and formula explanations.
10. Listening to the audio portions of the class made the class more personal in nature.
11. Listening to the audio portions assisted me in mastering the material.
12. Viewing the visual portions of the presentation reduced my anxiety as it relates to taking an online course.
13. I prefer visual methods of course delivery to written material only.
14. The visual portion of the presentations assisted me in the explanation of processes which involved multiple steps and formula explanations.
15. Viewing the visual portions of the class made the class more personal in nature.
16. Viewing the visual portions assisted me in mastering the material.
17. Both the audio and visual portions of the presentations reduced my anxiety as it relates to taking an online course.
18. I prefer audio and visual methods of course delivery to written material only.
19. The audio and visual portions of the presentations assisted me in the explanation of processes which involved multiple steps and formula explanations.
20. Listening to the audio and viewing the visual portions of the class made the class more personal in nature.
21. Listening to the audio and viewing the visual portions assisted me in mastering the material.
22. How anxious were you about taking this course?
23. Age on your last birthday.
24. Income after taxes (2006).
25. Gender.
26. I am a student in the following academic program.
27. Professional Career or Field.

Table 1

Mean ratings for Visual and Verbal Preference Items

Item

Mean \*

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Visual Preference

1 When doing something new at home or work, I like to see demonstrations,

drawings, slides, or posters

6.08

2 When learning a new computer application, I prefer diagrams or pictures

5.78

3 I prefer visual methods of course delivery to written material only

5.86

Verbal Preference

1 I prefer to listen to music than view a piece of art work.

5.24

2 I often would rather listen to a lecture than read material in a book

5.63

3 I prefer audio methods of course delivery to written material only

5.46

Visual and Verbal Preference

1 I prefer audio and visual methods of course delivery to written material only. 6.05

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Note

\* All means ratings are significantly higher than 4 at  $p < .001$

Table 2

Mean ratings for Anxiety Items

Item

Mean

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My level of anxiety in anticipation of taking the required finance course was

high for various reasons

4.33 \*

I was somewhat apprehensive about taking a finance course partially or totally

delivered online

3.94



Listening to the audio portions of the presentation reduced my anxiety as it

relates to taking this course.

5.70 \*\*\*

Viewing the visual portions of the presentation reduced my anxiety as it relate

to taking an online course

5.74 \*\*\*

Both the audio and visual portions of the presentations reduced my anxiety as it

relates to taking an online course.

5.93 \*\*\*

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Note.

\* Mean values are significantly higher than 4 at  $p < .05$ ;

\*\*\* Mean values are significantly higher than 4 at  $p < .001$

Table 3

Mean ratings for Learning Effectiveness Items

Item

Mean

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The visual portion of the presentations assisted me in the explanation

of processes which involved multiple steps and formula explanations 6.15 \*\*\*

Viewing the visual portions assisted me in mastering the material

6.00 \*\*\*

Listening to the audio portions assisted me in mastering the material 5.97 \*\*\*

Listening to the audio and viewing the visual portions assisted me in

mastering the material.

6.11 \*\*\*

The audio and visual portions of the presentations assisted me in the

explanation of processes which involved multiple steps and formula explanations.

6.19 \*\*\*

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Note

\*\*\* Mean values are significantly higher than 4 at  $p < .001$

Table 4

Mean ratings for Personalization Items

Item

Mean

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Listening to the audio portions of the class made the class more personal in nature.

5.98 \*\*\*

Listening to the visual portions of the class made the class more personal in nature.

5.81 \*\*\*

Listening to the audio and viewing the visual portions of the class made the class more personal in nature.

6.00 \*\*\*

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Note

\*\*\* Mean values are significantly higher than 4 at  $p < .001$

Table N

Sex Differences in Learning Preferences and Anxiety

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Scale	Sex	M	SD	n
t	p-value			
Visual Preference Item 1	M	6.28	1.11	101
2.081	p < .05			
	F	5.91	1.42	108
Visual Preference Item 2	M	5.98	1.18	101
1.722	ns			
	F	5.67	1.43	108
Visual Preference Item 3	M	6.01	1.10	100
1.372	ns			
	F	5.79	1.25	107
Verbal Preference Item 1	M	5.26	1.70	100
0.080	ns			
	F	5.24	1.77	108
Verbal Preference Item 2	M	5.78	1.55	101
0.932	ns			
	F	5.58	1.62	109

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Verbal Preference Item 3	M	5.72	1.44	100
2.282				$p < .05$
	F	5.24	1.58	108
Visual and Verbal Preference	M	6.21	1.02	100
1.713				ns
	F	5.93	1.34	108
Anxiety Item 1	M	4.75	2.02	100
2.460				$p < .05$
	F	4.07	1.97	106

(table continues)

Anxiety Item 2	M	4.17	2.16	100
1.305 ns				
	F	3.80	1.88	106