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Evaluating Visual/Verbal Online Finance Students

Frank Wyrostek, University of St. Francis
James Haefner, University of St. Francis

This study attempted to determine to what extent audio, video, or some combination of audio/video portions of lecture presentations were helpful in addressing issues related to anxiety, mastering the material presented, and making the class more personal. For several different finance courses, course content with both text and audiovisual material was loaded onto a server using the Adobe Breeze and Adobe Captivate 2 Screen Capture programs on a BLACKBOARD platform. Results based on multiple regression models showed that the new visual and audio portions of the lectures allowed respondents to master the material more effectively, which lead to lower levels of anxiety. Results also showed that making the class more personal through the visual and audio material improved students' sense that they were mastering the material.

Gibson (1998) 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 any sort of typical student profile (Thompson 1998, p. 9), instructors that provide online content should be continually aware of the diversity among their students. Inherent in this diversity is the visual/verbal style present in many learners. Addressing the needs of different learning styles is consistent with the challenge to understand the diverse nature of online learners.

Learning Styles

Jester (2000) conceptualized four distinct learning styles, and proposed that combinations of the four distinct styles are often present in learners. 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 accepted that these styles might co-occur within a particular individual. Visual-verbal learners prefer pictures and diagrams, but learn even more effectively when they write out explanations for the material they are studying.

Jester's (2000) second style, the visual-nonverbal, occurs when learners benefit from pictures and diagrams, but not as much from verbal material. He posited that visual learners can be either visual only or visual and verbal in nature. These two groups have a common foundation, namely the need for visual enhancements to support their learning.

The tactile-kinesthetic learning style is Jester's (2000) defined third style. These learners prefer physically active, hands-on activities. Finally, Jester's 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. Although it may be difficult to agree upon a common definition of learning style, most learning style models assume that students' learning styles are measurable and that mismatching styles with instructional techniques has a major effect on learning. Grasha and Yangarber-Hicks (2000) noted that learning styles are more analogous to colors on an artist's palette than to boxes into which we can categorize learners

Matching Learning and Teaching Strategies Online

Learning styles give instructors information about how individual students prefer to learn and can guide those instructors in what instructional designs will support their students' learning preferences (Akdemir and Koszalka, 2008). Learning theory literature has suggested that learning styles and preferences influence the effectiveness with which individuals learn. If instructors can gather firsthand knowledge of students' learning styles and preferences, therefore, this information can help instructors

choose the methods of instruction that will help their students learn the material most effectively (Smith and Dalton, 2005).

Fendler, Ruff, and Shrikhandle (2009) suggested that matching teaching and learning styles is not considered carefully enough when instructors design their coursework. Sarasin (1998), however, 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).

In their study, Fendler et al., (2009) specifically contended that matching teaching methods with learning styles is particularly relevant to online finance coursework. It follows, therefore, that designing and incorporating specific audio/visual presentations into an online finance curriculum should be effective in meeting the needs of students' learning styles, even in the online environment. By doing so, we can appeal directly to the verbal/visual learning style of a student and thus enhance their learning experience.

The literature has recognized, therefore, that instructors must appeal to a continuum of possible combinations of learners' verbal and visual preferences. This study examines if using pedagogical 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 learners' perceptions of their own learning (Claxton and Murrell, 1987). Akkoyunlu and Soylu (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 prior studies have shown that matching learning styles with teaching methods benefits academic achievement (Chou and Wang, 1999; Lipsky, 1989; Smith and Dalton, 2005).

Hallock et al., (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. Furthermore, particular preferences for learning style have been shown to correlate with academic performance in an online environment (Beadles and Lowery, 2004). By first identifying learning preferences and then appealing to those preferences, instructors can create a more effective online learning environment. If significant numbers students in online classes can self-categorize themselves as visual, verbal, or visual-verbal learners, matching instructional teaching techniques to the students' styles will then benefit the educational process. 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.

Gender Issues

Men and women may not differ in terms of cognitive ability related to academic performance, but differences exist in their ways of knowing (Belensky et al., 1986; Gallos, 1993), and learning style (Gallos, 1993). Gilligan (1982) offered interview research supporting the idea that gender differences in attitude toward formal learning experiences are the result of intrinsic psychological differences between men and women, describing men as being driven more by issues of separation and women as being more driven by issues of connection.

In their study, Peng and Chiou (2010) showed through analysis of variance and structural equation modeling that two contingent variables, gender and job status, significantly influenced the perceptions of predictors and students' satisfaction with e-learning systems. Their study focused specifically on the issue of gender differences.

Ong and Lai (2006) also found empirical evidence that supported gender differences in perceptions and the relationships among the dominant predictors of e-learning. Garland and Martin (2005) argued that both learning styles and student gender must be considered when designing online courses. Marin found empirical evidence that gender was indeed a factor in the relationship between learning style and student engagement.

Sullivan (2001) analyzed male and female college students' experiences in the online environment. Significant differences were found between the way male and female students identified the strengths and weaknesses of the online environment regarding flexibility, face-to-face interaction, shy and quiet students, self-discipline, and self-motivation. Taplin and Jegede (2001) investigated gender differences in factors that contribute to success in online education, including how the course material is organized and the use of study materials, confidence about studies, and independent versus collaborative studies.

Learning styles differ by gender. Belenky et al., (1986) and MacKeracher's (1994) found that there were separate and connected learning style models. These studies indicated that adult students who prefer to learn in a separate mode are generally male while those who prefer a more connected style are often female.

Another study by Price (2006) found that online female students were confident, independent learners who were engaged academically and may outperform their male counterparts online. Female students tend to place greater value on the pastoral aspect of tutoring and have different interaction styles compared with men. Similarly, Chyung (2007) stated that younger male students' exam scores and younger female students' exam scores differed significantly, with. In addition, Gunn et al., (2003) mentioned that gender differences exist in styles of participation and contribution in computer-mediated communication. They found that women posted and read more messages than their male counterparts on the course bulletin board.

Research Hypotheses

- Adult students will benefit from material that is presented in both a visual and verbal form rather than just a visual or verbal format
- Female online students will be more anxious and feel they have not mastered the material as well as males as the delivery mode is more separate than connected in nature

Objectives

This study focuses specifically on the use of audio-visual presentations and attempts to determine if they appeal to either verbal, visual, or both verbal-visual learning styles in the online context of a finance class. The study examined the extent to which the audio and visual portions of the lecture presentations were helpful in addressing issues related to anxiety, mastering the material presented, and making the class more personal.

METHODOLOGY

Project Description

The first author has previously delivered a managerial finance course using Blackboard courseware. This environment facilitates discussions, assignment submissions via the web, quiz and test management, and email communication with the faculty member. All course material is online, with the particular course delivered 100% online within the Blackboard environment. The course content area contained weekly chapter sequences with both text and audiovisual lecture material loaded onto a server using the Adobe Breeze and Adobe Captivate 2 Screen Capture programs.

The links to the audiovisual Breeze PowerPoint presentations were embedded as a link in a text lecture or as a clickable link in the course content area. The lectures were sequenced as outlined in both the syllabus and textbook. The authors specifically used this technology to replicate a face-to-face lecture in an online environment. Audio, coupled with a step-by-step animated process was found to reproduce a life-like, chalkboard-type of presentation. The purpose of this study, therefore, was to measure whether this online method of delivery improves students' ability to follow steps involved in solving problems and whether the method has potential to better explain the steps exposition by appealing to students' different learning styles.

Questionnaire

The survey consisted of 27 questions divided into four sections. Questions 1-21 used a 7-point balanced Likert scale anchored by 7 = very strongly agree and 1 = very strongly disagree. The last six questions gathered demographic information about age, income, gender, profession, and what degree program in which the respondent was enrolled.

The first section (questions 1-6) were designed to gather information pertaining to whether the student preferred auditory, visual, or both auditory and visual methods in learning. The questions in this section also measured pre-course anxiety levels.

The second section (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. Anxiety, mastering the material, and making the class more personal were the key dependent variables.

The third section (questions 12-16) was 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 or her anxiety, mastering the material, and making the class more personal.

The fourth section (questions 17-21) centered on the combination of the audio and visual aspects of the presentations. Again, the goal was to measure to what extent audiovisual material taken together addressed issues relating to anxiety, mastering of material, and personalizing the class.

Data Collection

Surveys were sent to students who had taken one of four courses graduate or undergraduate business courses from fall 2007 through fall 2010. These courses were managerial finance (graduates), investments (undergraduates), capital budgeting (undergraduates) and principles of finance (undergraduates) 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 (in this case, the instructor) to display his or her screen to the student who is viewing the presentation.
- Total number of students surveyed was 271 students completed the survey, This resulted in an effective response rate of 92%.Students were strongly encouraged to complete the survey, although no incentive related to their grade was used. They were told their input would be used to help improve the design of the online curriculum and in a research study.

Table 1: Respondent Demographics

Demographic	Percentage (Mean)	Frequency
Gender:		
Male	50.2	129
Female	49.8	128
Academic Program:		
Undergraduate Business Major	36.8	95
Perusing Graduate Business Degree	56.2	145
Undergraduate Non-Business Major	6.9	18
Income (mean)	$54,877	
Age (mean)	32.7 years	

Results

Respondent demographics are displayed in Table 1. Among the 271 respondents, 49.8% were female with 50.2% being male. Academic program indicated that 36.8% were undergraduate business majors, 56.2% were pursuing a graduate business degree, and 6.9% were undergraduate non-business majors. Their mean income after taxes was $54,877, with income ranging from $80 to $180,000. Age ranged from 18 years to 60 years, with the average being 32.7 years.

When reviewing the data concerning learning styles, audio, visual, or a combination of audio and visual (see Table 2), the only significant mean differences were found between the following items: "I prefer to listen to music than view a piece of art work" (5.2) and "When doing something new at home or work, I like to see demonstrations, drawing, slides, or posters" (6.0), as well as "I often would rather listen to a lecture than read material in a book" (5.5) and "When doing something new at home or work, I like to see demonstrations, drawing, slides, or posters." (6.0). These results indicate that the students surveyed demonstrated some preference toward visual learning styles. Some respondents, however, combined both visual and auditory learning tendencies. This is evidenced by no statistical difference found between the items: "I often would rather listen to a lecture than read material in a book" (5.5) and "When learning a new computer application, I prefer diagrams or pictures" (5.6).

A simple one-way ANOVA conducted on the four questions dealing with learning style indicated gender differences in the following items: "When doing something new at home or work, I like to see demonstrations, drawing, slides, or posters" ($F = 7.6$, $p \leq .01$).Men (6.27)were more likely to agree with this statement than women (5.79). For the other significant statement, "When learning a new computer application, I prefer diagrams or pictures" ($F = 5.4$, $p \leq .02$), men (5.94) were more likely to agree than women (5.53). This indicates that men are more likely to be visual learners.

Table 2: Learning Styles

Learning Style Items	Mean
1. I prefer to listen to music than view a piece of art work.	5.2
2. When doing something new at home or work, 3. I like to see demonstrations, drawing, slides, or posters.	6.0
4. I often would rather listen to a lecture than read material in a book.	5.5
5. When learning a new computer application, I prefer diagrams or pictures.	5.6

Note. Items were rated on a 7-point balanced Likert scale with anchors of 1 = very strongly disagree and 7 = very strongly agree. Based on Tukey Kramer multiple comparisons, difference between means greater than .44 were significant at $p \leq .05$.

Items 1 and 2 attempted to obtain pre-course anxiety levels (see Table 3). Item 1 revealed a mean of 4.3 concerning taking a required finance course, while item 2 showed that the mean for taking that same course delivered partially or totally online was statistically the same at 4.0.This indicates taking finance courses online did not provoke a particularly high level of anxiety. This may well be due in part to the fact that most of the participants had already taken online courses successfully.

Reviewing items 3 (mean = 5.7), 4 (mean = 5.4), and 5 (mean = 6.1), the means were in the mid-5 to low-6 range. While no statistical differences were found between these means, they were statistically different from the pre-measures. If one were to view these three anxiety ratings as pseudo post-measurements, it indicates that the course presentation techniques tended to reduce feelings of anxiety from the initial pre-measurement.

Table 3: Respondents' Anxiety Levels

Anxiety Items	Mean
1. My level of anxiety in anticipation of taking the required finance course was high for various reasons.	4.3
2. I was somewhat apprehensive about taking a finance course partially or totally delivered online.	4.0
3. Listening to the audio portions of the presentation reduced my anxiety as it relates to taking this course.	5.7
4. Viewing the visual portions of the presentation reduced my anxiety as it relates to taking an online course.	5.4
5. Both the audio and visual portions of the presentations reduced my anxiety as it relates to taking an online course.	6.1

Note. Items were rated on a 7-point balanced Likert scale with anchors of 1 = very strongly disagree and 7 = very strongly agree. Based on Tukey Kramer multiple comparisons, difference between means greater than .69 were significant at $p \leq .05$.

For the questions dealing with explanations of processes, making the class more personal, and mastering the material, the means were all in the high 5 to low 6 range. Respondents preferred the

combination of audio and visual course delivery compared to just the audio or visual methods alone (See Table 4).

Table 4: Means of Audio and Visual Aspects of the Presentations

Item	Means
I prefer audio methods of course delivery to written material only	5.45
The audio portions of the presentations assisted me in the explanation of processes which involve multiple steps and formula explanations	6.19
Listening to the audio portion of the class made the class more personal in nature	5.98
Listening to the audio portions assisted me in mastering the material	5.97
I prefer visual methods of course delivery to written material only	5.79
The visual portions of the presentations assisted me in the explanation of processes which involve multiple steps and formula explanations	6.12
Viewing the visual portions of the class made the class more personal in nature	5.78
Viewing to the visual portions assisted me in mastering the material	5.99
I prefer audio and visual methods of course delivery to written material only	5.95
The audio and visual portions of the presentations assisted me in the explanation of processes which involve multiple steps and formula explanations	6.14
Listening to the audio and viewing the visual portions of the class made the class more personal in nature	5.96
Listening to the audio and viewing the visual portions assisted me in mastering the material	6.07

Note. Based on Tukey Kramer multiple comparisons, difference between means greater than .39 were significant at $p \leq .05$.

Gender differences were found related to both the measured anxiety levels and audio and visual aspects of the presentations. In all instances for anxiety, men indicated a stronger level of agreement when it came to anxiety; that is, they indicated they felt less anxiety than women. (See Table 5) Regarding the 12 questions related to the audio and visual aspects of the presentations, men indicated greater agreement than did women for 11 of the 12 questions.

Table 5: Anxiety Levels and Audio and Visual Aspects of the Presentations, Gender Differences

Anxiety Items	**Means**	
	Male	**Female**
My level of anxiety in anticipation of taking the required finance course was high for various reasons[1]	4.76	4.06
Listening to the audio portions of the presentation reduced my anxiety as it relates to taking this course[2]	6.15	5.25
Viewing the visual portions of the presentation reduced my anxiety as it relates to taking an online course[3]	6.06	5.37
Both the audio and visual portions of the presentations reduced my anxiety as it relates to taking an online course[4]	6.30	5.53
Audio and Visual Aspects of the Presentations	**Means**	
	Male	**Female**
I prefer audio methods of course delivery to written material only[5]	5.77	5.17
The audio portions of the presentations assisted me in the explanation of processes which involve multiple steps and formula explanations[6]	6.49	5.89
Listening to the audio portion of the class made the class more personal in nature[7]	6.27	5.66
Listening to the audio portions assisted me in mastering the material[8]	6.32	5.63
The visual portions of the presentations assisted me in the explanation of processes which involve multiple steps and formula explanations[9]	6.41	5.84
Viewing the visual portions of the class made the class more personal in nature[10]	6.11	5.45
Viewing the visual portions assisted me in mastering the material[11]	6.29	5.72
I prefer audio and visual methods of course delivery to written material only[12]	6.16	5.76
The audio and visual portions of the presentations assisted me in the explanation of processes which involve multiple steps and formula explanations[13]	6.46	5.81
Listening to the audio and viewing the visual portions of the class made the class more personal in nature[14]	6.26	5.66
Listening to the audio and viewing the visual portions assisted me in mastering the material[15]	6.35	5.79

Note. Items were rated on a 7-point balanced Likert scale with anchors of 1 = very strongly disagree and 7 = very strongly agree." [1] $F = 7.9$, $p \leq .01$ [2] $F = 25.7$, $p \leq .01$ [3] $F = 20.6$, $p \leq .01$ [4] $F = 25.5$, $p \leq .01$ [5] $F = 10.2$, $p \leq .01$ [6] $F = 17.3$, $p \leq .01$ [7] $F = 12.9$, $p \leq .01$ [8] $F = 19.0$, $p \leq .01$ [9] $F = 18.7$, $p \leq .01$ [10] $F = 17.1$, $p \leq .01$ [11] $F = 17.2$, $p \leq .01$ [12] $F = 5.7$, $p \leq .01$ [13] $F = 20.4$, $p \leq .01$ [14] $F = 14.5$, $p \leq .01$ [15] $F = 14.4$, $p \leq .01$.

Multiple regressions were used to determine the relationships between the three anxiety questions and the seven independent variables. The dependent variables were:

1. Audio portions of the presentation reduced my anxiety (Audio Model)
2. Visual portions of the presentation reduced my anxiety (Visual Model)
3. Audio and visual portion of the presentation reduced my anxiety (Audio/Visual Model)

The 8 independent variables were:

1. I prefer audio methods of course delivery to written material (Prefer Audio)
2. The audio portions of the presentations assisted me in the explanation of processes which involved multiple steps and formula explanations.
3. The audio portions of the presentations assisted me in the explanation of processes which involved multiple steps and formula explanations (Explanation of Process)
4. Listening to the audio portions of the class made the class more personal in nature (More Personal)
5. Listening to the audio portions assisted me in mastering the material (Master Material)
6. Gender as a dummy variable
7. Income
8. Age

For the independent variables related to visual learning, the items were phrased the same, except the term "visual" was substituted for the term "audio." Likewise, for the audiovisual independent variable, the dependent questions were the same; except that the term "audiovisual" was substituted for the term "audio" (See Table 6).

Table 6: Regressions against Anxiety Levels

	Model Summary				Coefficients (Standardized Betas)				
Model	F	Significance	R	Adjusted R^2	Variables	t	Significance	Weight	VIF
Audio	117.5	.00	.855	.724	Master Material	12.8	.00	.689	1.3
					Prefer Audio	3.3	.00	.173	1.2
					Age	3.2	.00	.158	1.1
Visual	51.4	.00	.663	.431	Explanation of Process	4.0	.00	.363	1.8
					Master Material	3.9	.00	.359	1.8
Audio-visual	105.2	.00	.786	.612	Master Material	7.1	.00	.613	2.5
					More Personal	2.4	.01	.208	2.5

The audio model had a significant adjusted R^2 of .724; the visual model's adjusted R^2 was .431; and the audio-visual model's adjusted R^2 was .612. All the models were robust in terms of explanatory power. The VIF numbers all indicated no issues with multicollinearity.

For the audio model, the items asking the following were all significant predictors of anxiety levels: "I prefer audio methods of course delivery to written material"; "Listening to the audio potions assisted me mastering the material"; and age. For age, the older the respondent, the more they expressed reduced anxiety levels or higher levels of agreement with the anxiety statements.

For the visual model, the statements of "Viewing the visual potions assisted me mastering the material" and "The visual portion of the presentation assisted me in the explanation of processes which involved multiple steps and formula explanations" emerged as the two significant standardized beta weights.

Finally, for the audiovisual model, the statements of "Listening to the audiovisual portions assisted me mastering the material" and "Listening to the audio and viewing the visual portions of the class made the class more personal" were the two significant beta weights. Mastering the material was common to all three models.

To determine which elements lead to a sense of being able to master the material, a series of regressions were conducted with "mastering the material" now designated as the dependent variable and

the other variables remaining independent. The independent variables included age, gender, and income (See Table 7).

Table 7: Regressions against Mastering Material

	Model Summary				Coefficients (Standardized Betas)				
Model	F	Significance	R	Adjusted R^2	Variables	t	Significance	Weight	VIF
Audio	123.6	.00	.807	.647	More Personal	8.3	.00	.574	1.7
					Explanation of Process	4.4	.00	.303	1.7
Visual	146.8	.00	.831	.685	Explanation of Process	9.1	.00	.537	1.4
					More Personal	6.8	.00	.401	1.4
Audio-visual	238.5	.00	.884	.779	Explanation of Process	10.2	.00	.636	2.3
					More Personal	4.7	.00	.298	2.3

For mastering the material, the audio model had a significant adjusted $R^2$of .647; the visual model's adjusted R^2 was .685; and the audiovisual model's adjusted R^2 was .779.All the models were robust in terms of explanatory power. The VIF numbers all indicated no issues with multicollinearity.

The most important predictors for all models included making the class more personal and assisting the respondents in explaining and understanding the processes that involved multiple steps and formulas.

Discussion

Among this survey's respondents, taking finance courses online did not provoke a particularly initial high level of anxiety. This may well be due in part to the fact that most of the participants had already taken online courses successfully.

For generic learning styles, some preference among the respondents emerged toward the visual, but many of the respondents used both audio and visual approaches. This generic finding was confirmed when the regression models indicated that students used audio, visual, and a combination of audio and visual approaches to understanding processes and master the course material.

Mastering the material was an important independent variable for the audio, visual, and audiovisual regression models that used anxiety levels as the dependent variable. This raises an interesting speculation that the effect of adding new visual, audio, and audiovisual components provided respondents with a sense of confidence that allowed them to either grasp the material more effectively or at least gave them the sense that they had a better grasp of the material.

Regression models helped decipher what lead students to feel they were able to master class material. Making the class more personal and assisting in explaining processes that involved multiple steps and formula explanations were in all included in the models that gauged audio, visual, and audiovisual learning styles. Certainly, it is intuitive that if formulas and processes are perceived to be well explained a sense of mastering the class material should follow. Adding new visual, audio, and audiovisual components can make the course feel more personal. This begs speculation as to whether this provides a greater degree of intimacy between the instructor and the student leading to a greater feeling/sense of being able to master the course material. A class that feels more personal might be one that allows the student to believe that help will be available or that another understandable explanation of the material will be provided. Such feelings could thus lead to a sense that mastering the material is always possible.

As noted, Gilligan (1982) described men as being more driven by issues of separation and women as being more driven by issues of connection. One might consider that women view online classes as lacking of sense of connectiveness, which might have led to their lower scores concerning anxiety levels, mastering the material, making the class more personal, and understanding processes. Thus hypothesis two is confirmed.

Women, at the broadest cultural level, have been taught to be more relational than men. They have also been taught to judge success or failure based on the judgments of others. Online classes, regardless of how the material is presented, cannot replace the personal interactions in a classroom setting between instructors and fellow classmates. These interactions not only provide verbal but also nonverbal feedback.

Such interactions allow more systematic judgments to be made about class progress, not only from the instructor but also peers.

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Frank Wyrostek is a professor of business administration at University of St. Francis. He received his Ph.D. from Loyola University Chicago. His current research has included the areas of developing online pedagogy for the finance field. Specifically his interest include how to use new technologies and software programs in producing effective interactive presentations online demonstrating financial concepts and processes. He has published recently in the Journal of Business and Leadership

Jim Haefner is a professor of business administration at University of St. Francis. He received his Ph.D. from the University of Minnesota. Research interests include global branding, healthcare with an emphasis on the branding of organizations, and online learning. He has published in Journal of Applied Psychology, Journal of Advertising, Journal of Advertising Research, Journal of Global Business Advancement, and others.

Appendix: Survey Items

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.