Pepperdine Faculty Collaboration Network

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Pepperdine University

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Executive Summary

- The purpose of this report is to assess the efficacy of deploying a faculty collaboration network at Pepperdine University (PFCNET). This project consisted of a best practices review, a university-wide faculty survey, the deployment of a prototype faculty collaboration network at the Graziadio School, and the establishment of general requirements for a university-wide PFCNET.
- The results from the university wide survey revealed that the new learning technologies are helpful for course communication, posting materials, promoting student discussions, facilitating discussion and collecting assignments. Presently, the most useful learning technologies at Pepperdine are Sakai, document sharing, and web conferencing tools.
- Technology has become a big part of the modern workplace and online learning can be efficient in teaching and learning. Although a majority of the survey respondents are leaning towards using electronic materials and online learning tools to facilitate teaching, different opinions exist for launching fully online programs.
- The current ten percent growth rate for online enrollments is significantly higher than the two percent growth in the overall higher education student population. Presently, 65 percent of institutions of higher learning indicate that online learning is a critical part of their long term strategy.
- Students are becoming increasingly oriented towards using technology. Technology can be beneficial for keeping students more fully engaged in the learning process and for providing increased flexibility and convenience. In this regard, m-learning (mobile) is becoming an integral part of higher education.
- Presently, the faculties from GSEP and GSBM have a stronger inclination towards blended/online programs than faculty from the other schools as demonstrated by the survey and Sakai usage.
- Massive Online Open Courses (MOOCs) have emerged over the past year. Universities are offering free courses created and managed by their leading professors at no cost to the student.
- The prototype collaboration network developed for this project has been used to support the deployment of the Graziadio School's new online program. Consideration should be given to deploying the system throughout Pepperdine.
- The results from this project have been presented at the AACSB Annual Meeting, the Sloan International Conference on Emerging Technologies, and the International Conference on Hybrid Learning.
- Smaller institutions have expressed an interest in accessing Pepperdine's online assets.
- Consideration should be given to appointing a university-wide academic coordinator to help facilitate the transition to m-learning.

Thirty years from now the big university campuses will be relics.

—Peter Drucker (1997)

Introduction

Higher education has come a long way since Sir Isaac Pitman initiated the first correspondence course in the early 1840's. The one-size-fits-all educational approach of the past is being transformed as a result of changing worldwide dynamics. To address these challenges, Pepperdine University is working to develop a Pepperdine Faculty Collaboration Network (PFCNET). To support this effort, a best practices analysis and a survey of Pepperdine faculty attitudes towards learning and technology was conducted. The main purpose of the survey was to determine faculty attitudes at Pepperdine University regarding new learning technologies and the role of faculty collaboration in helping implement these technologies.

Project Idea

The goal of the proposed project is to design a Pepperdine Faculty Collaboration Network (PFCNET) in which the Pepperdine community, particularly the faculty, can converge, share, and exchange ideas to drive innovation regarding student learning. PFCNET is a nodal system that would bring together the university's five schools, various departments and administration. A primary function of the PFCNET is to provide the Pepperdine community with access to curriculum innovation, databases, cloud computing resources, m-learning technologies, and implementation strategies. Specific goals of the platform include:

- To provide an outlet for interchange among faculty on emerging topics
- To identify faculty expertise in these topics
- To provide university leadership a sounding board for critical issues and policies
- To strengthen relationships between individual schools
- To support faculty discussion boards with relevant article links
- To expand Sakai usage

Some of the factors driving the shift in higher education include globalization, student demographics, sustainability and enabling technology. The technical reformation in higher education is being brought about by the same networking and computing systems that revolutionized global commerce over the past two decades. Partnering the Internet with modern Learning Management Systems (LMS) makes it possible for Pepperdine to offer a more diverse set of programs on a global basis. Two critical tasks in this partnering process are the development of high quality curricula and content that can be delivered in a reliable manner and that will be accepted by the students. In this regard, hybrid learning, e-learning, distance learning and mobile learning are playing an increasingly significant role in the collaboration learning process.

PFCN Presentation

The proposed collaborative network is a learning-centric virtual structure that focuses on enhancing the education process and solving issues within the Pepperdine community. Three key characteristics of an effective collaboration network include:

- Coordination – Ease of use and access
- Communication – Capability to share information
- Cooperation – Supports task group realization

These characteristics formed the cornerstone of this project. Figure 1 presents the overall PFCNET design concept.

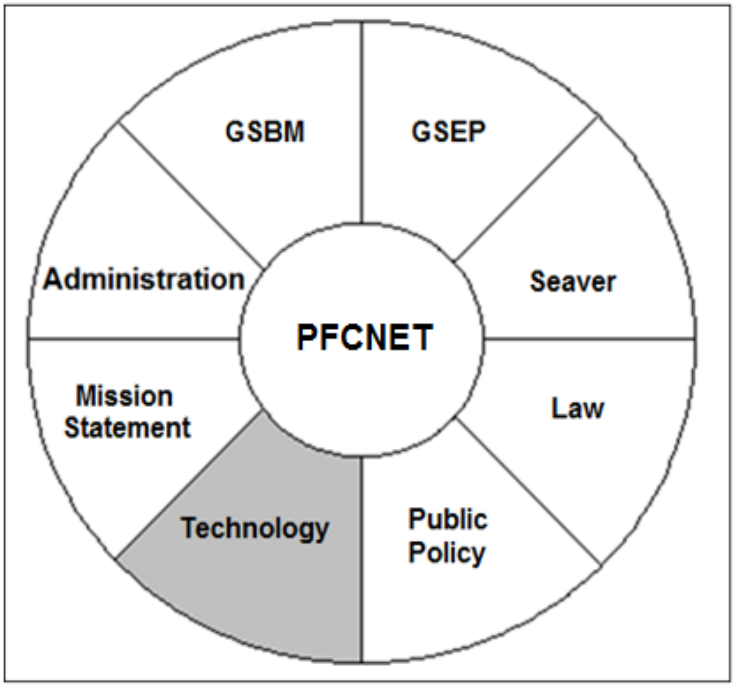


Figure 1 – PFCNET Concept Design

Project Objectives

The specific project objectives are presented below:

- Identify current best practices in collaborative learning networks
- Assess faculty and administrators attitudes towards PFCNET
- Identify project success metrics
- Characterize implementation challenges and barriers
- Deploy prototype system at GSBM based on requirements and specifications
- Present the results both internally and at several academic conferences
- Prepare a journal article.

Project Impact

Many universities are continuing to experience student enrollment and employment challenges. These trends can be traced to a variety of phenomena including: rising tuitions, the growth of for-profit and overseas educational institutions, student visa restrictions, Internet-based programs, reductions in tuition reimbursement, changing student demographics and the current state of the economy. To meet these ongoing challenges, universities are currently reviewing both curriculum and delivery modalities. Enhancing collaboration amongst both faculty and administration offers a vehicle for helping improve program/curriculum design and delivery. The successful deployment of PFCNET will help usher in a new era in educational opportunities at Pepperdine through increased faculty collaboration.

Faculty Adoption of Technology

Adoption of the new learning technologies is an essential ingredient for designing and deploying a vibrant curriculum. Figure 2 illustrates a modified Rogers' Adoption Model (Rogers, 2003). This model is based on the Empirical Rules from classical statistics. The modification involves splitting the original laggards classification into laggards and luddites. In academia, unlike most of the commercial world, there are some individuals who will never adopt new learning technologies no matter the nature of the incentives and disincentives. The Rogers' paradigm, as applied to academia, indicates that the vast majority of the faculty tends to react slowly to the adoption of new learning technologies. This tendency can be overcome, in part, through a combination of faculty training and incentives.

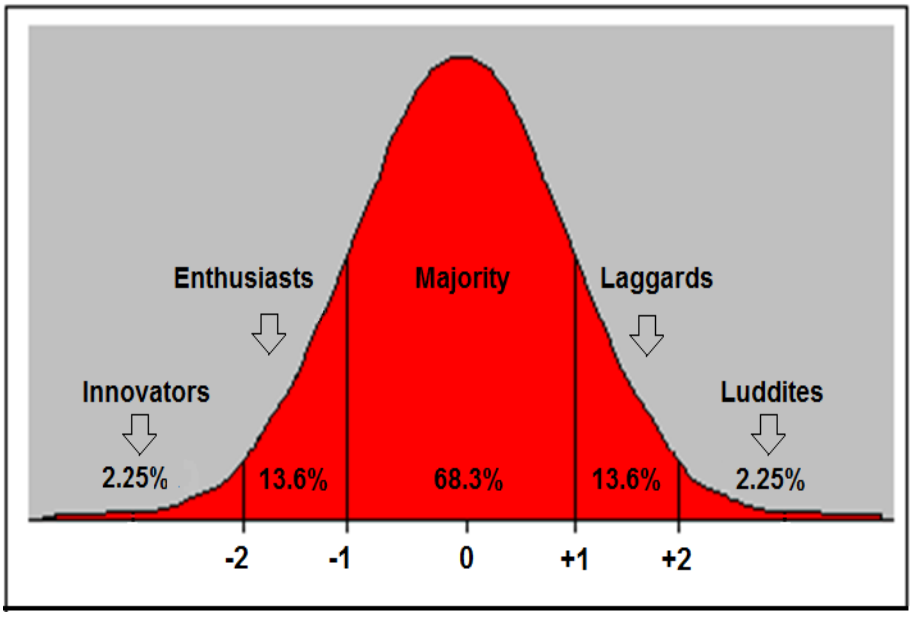


Figure 2 – Modified Rogers' Adoption Model

Best Practices Assessment and Trends

Presented in the following are highlights from the best practices assessment.

- The number of top ranked schools launching online and blended programs continues to grow
- Over six million domestic students were taking at least one online course during the fall 2010 term, an 11 percent increase of over the previous year
- Thirty-one percent of higher education students have taken at least one course online and this number continues to grow
- Many academic leaders believe that the level of student satisfaction and learning outcomes is equivalent for online and face-to-face courses
- Online student satisfaction appears to be multifaceted and therefore requires a careful examination using multiple rubrics
- The significant differences in Sakai usage between the five schools offer abundant opportunities to improve system utilization via a cloud-based faculty collaboration system
- Faculty collaboration networks offer considerable promise for helping to implement new learning technologies
- Faculty collaboration networks support the deployment of hybrid and online programs
- Faculty training in the new learning technologies is a must to ensure widespread adoption
- Faculty incentives to adopt the new learning technologies is also essential
- The building of faculty networks or communities is increasingly seen as an alternative form of professional development, allowing faculty to share experience, information and good practice
- Cloud computing technologies have changed the way learning applications are going to be developed and accessed. These technologies are aimed at running applications as services over the Internet on a flexible infrastructure
- Cloud computing enhances the engagement among educational researchers and educators to better understand and improve their practice, in increasing the quality of their students' learning outcomes, and in advancing the scholarship of teaching and learning in a higher education context
- Intelligent tutors can help facilitate faculty adoption of the new learning technologies while at the same time can be used to improve student learning outcomes
- Internet-based business simulation, at both the capstone as well as the individual course level, provides for a unique and in-depth learning experience

Survey Highlights

Presented in the following are highlights from the faculty survey. Detailed survey results can be found in Appendix A.

- The faculty view learning management systems, academic social networks and document sharing as the top three technologies for enhancing student learning
- Nearly 100 percent of the faculty agree or strongly agree that the modern workplace is increasingly relying on computer, online, and mobile technologies
- Nearly 75 percent of the tenured faculty believe that online learning tools can create efficiencies in teaching
- Of the specific categories listed, faculty training represented the number one barrier preventing the faculty from more fully embracing online learning tools
- Nearly 80 percent of the faculty believe that either a one-half day or one day training seminar would be the most effective
- Nearly 45 percent of the tenured faculty believe that offering online learning will help recruit new students
- Nearly 55 percent of the tenured faculty agree or strongly agree that Pepperdine's peer and inspirational institutions are increasing their use of online learning tools and systems
- Nearly 70 percent of the faculty agree or strongly agree that online tools can be used to evaluate student learning
- Nearly 40 percent of the tenured faculty agree or strongly agree that hybrid/blended programs will be important to the future of Pepperdine University.
- Nearly 40 percent of the tenured faculty are currently or will be providing within two years at least 25 percent of course materials online
- Nearly 45 percent of the tenured faculty are currently or will be replacing print textbooks with electronic equivalents
- Nearly 35 percent of the tenured faculty agree or strongly agree that fully online programs will be important to the future of Pepperdine University.
- Nearly 95 percent of the faculty believe that Instructors need sufficient training to implement online learning
- Nearly 60 percent of the tenured faculty agree or strongly agree that a collaborative network of peer faculty would help enhance class outcomes
- Nearly 45 percent of the tenured faculty agree or strongly agree that a web-based service that offers real-time communication and document sharing with peer faculty would help in adopting learning technologies
- In general terms, tenure track and practitioner faculty are more optimistic about the use of online learning systems

Statistical Analysis

To assess the internal reliability of the survey instrument a Cronbach analysis using SPSS was performed (see Appendix C). The applicable survey questions were divided into three broad constructs, where the values in parentheses are the number of items associated with each construct: Online learning is becoming increasingly utilized throughout academia (5), Online learning is helpful for both teaching and learning (2), and Faculty collaboration support networks are helpful (2). Cronbach's alpha tends to increase as the inter-correlations between applicable test items increases. The resultant analysis revealed Cronbach's alpha scores of 0.77, 0.78 and 0.74 for the three constructs, respectively. For most applications, alpha ranges in value between zero and one, although technically there is no lower limit. This reliability statistic provides an indication as to how consistently the variables measure a specific construct. Alpha values above 0.7 are generally viewed as satisfactory. Therefore, the results from this analysis suggest acceptable internal consistency regarding the survey design. This outcome is particularly encouraging since in two cases the construct contained only two items. Generally speaking, alpha increases in proportion to the number of items in the construct.

A preliminary statistical analysis of the survey data was conducted using question #16 (I believe that hybrid/blended programs will be important to the future of Pepperdine University) as the target or outcome variable. A Chi-square Test of Independence using faculty status (tenured versus tenured track/ practitioner) as one variable and faculty views on hybrid programs as the second variable was used to discover if there is a relationship between the two categorical variables. The null hypothesis in the test states that the two variables are independent and knowing one does not help predict the other. A resulted p-value below the desired significance level (which may equal to 0.01, 0.05, or 0.10) will reject the null hypothesis. The results at the 0.05 level for question #16 revealed that there is a statistically significant association between faculty status and faculty views on the programs.

To quantify as well as examine the relationship between schools and faculty views on the programs, two regression analyses were conducted based on the responses of question #16: one is a Binary Logistic Regression and the other is a Multinomial Logistic Regression. In the binary logistic regression, the responses from question #16 were classified into two categories, with responses "strongly agree" and "agree" being classified as "agree" and the other responses being classified as "disagree". Category "disagree" was set as the reference in the regression. As the results show in Appendix D, the Omnibus Tests indicate a good fit of the overall model with an overall percentage correct of 68.4%. Faculty at GSEP and GSBM appear to be more likely to agree on the importance of hybrid and online programs than those in the other schools. In the multinomial logistic regression, the responses from question #16 were classified according to their original Likert-scale values. Category "strongly disagree" was set as the reference in the regression. As the results shown in appendix E, the Model Fitting Information table indicates a good fit of the overall model. Seaver college faculty seem less sanguine regarding the future role of technology at Pepperdine University.

Faculty Collaboration Network

Prototype Design

The primary goal of a faculty collaboration network is to provide a platform in which the education community can converge, share, and exchange ideas to drive innovation regarding student learning. A collaboration network is a nodal system that brings together university departments, research institutes, business, accrediting bodies, and governmental education agencies. A basic function of the network is to provide the educational community with access to curriculum innovation, databases, cloud computing resources, m-learning technologies, and implementation strategies. As part of the current project, a prototype collaboration network was developed for the Graziadio School. Figure 3 presents the overall design. The current system consists of a file sharing system (Box), a real time audio conferencing system (Join.Me), real time video conferencing, and an academic networking system (Yammer). This prototype has been used to support the implementation of the Graziadio online MBA program. Collaboration networks hold out considerable promise for enhanced sharing and communication between Pepperdine's five schools. A fully deployed university-wide PFCNET will help usher in a new era in education learning opportunities at Pepperdine.

Figure 3 – Graziadio Collaboration Network Prototype

Collaboration Network Design Requirements

Listed in the following are some of the design requirements and specifications associated with deploying a faculty collaboration network on a university-wide basis.

- Connects to a single Login ID system through APIs
- Supports slide, video, and document sharing
- Leverages Yammer networking through APIs
- Archival recordings of conference meetings
- Online training and help support
- Ease of use/up-to-date icon-based screens
- Verification of membership
- Leading edge security software.
- Push technology to provide timely alerts
- Blogging and threaded discussion tools
- Synchronous and asynchronous capabilities
- Large-scale cloud storage
- Document search and Analytics
    - Key word selection
    - Automatic edit
    - Excel compatible reports
- Access to best practices sources
- Entrée to virtual library resources on a worldwide basis

It is recommended that the prototype collaboration network be tested using central IT's faculty advisory group.

Faculty Collaboration Network Link

Conclusions

Higher education is undergoing a fundamental shift from a teacher-centric to a learning-centric environment. In graduate management education, this transformation is being fueled by the need to produce educated managers that can compete on a global basis. The Internet is playing an ever increasing role in this reformation. Internet-based learning systems hold out considerable promise for enhancing higher education in a changing global environment. As a result of these developments, many universities are increasingly focused on customization, experiential learning, and results assessment. The new learning paradigms in play throughout higher education are designed to significantly alter the three pillars of traditional graduate management education instruction - fixed time, fixed location, and fixed learning pace - with a more flexible and customized learning process. Specific benefits of these new educational initiatives include:

- Affords an integrated perspective on the course/program
- Presents instructional-rich content including real-time feedback
- Offers courses designed for specific learning applications
- Increases student team participation and interaction
- Improves quality control through content integration and standardization
- Supports quality assurance through rubric measurements
- Provides opportunities for student virtual internships

Faculty collaboration networks provide a platform in which the education community can converge, share, and exchange ideas to drive innovation regarding student learning as listed above. A collaboration network is a nodal system that brings together university departments, research institutes, business, accrediting bodies, and governmental education agencies. A basic function of a collaboration network is to provide the educational community with access to curriculum innovation, m-learning technologies, and implementation strategies.

Presented in the following are some specific project recommendations:

1) Appoint an *academic* leader at the university level to oversee the plans and programs for leveraging the Internet throughout Pepperdine.
2) Develop and conduct two, one-half day faculty training seminars on new learning technologies over the next 12 months
3) Implement a university wide collaboration network during 2013
4) Establish strategic alliances with peer schools for enhancing student learning opportunities via the collaboration network
5) Evaluate faculty incentives for encouraging the use of new learning technologies
6) Strengthen central IT's faculty advisory board as a vehicle for promoting the new learning technologies
7) Include administration in the collaboration process
8) Explore the opportunities for sharing the Pepperdine system with smaller institutions

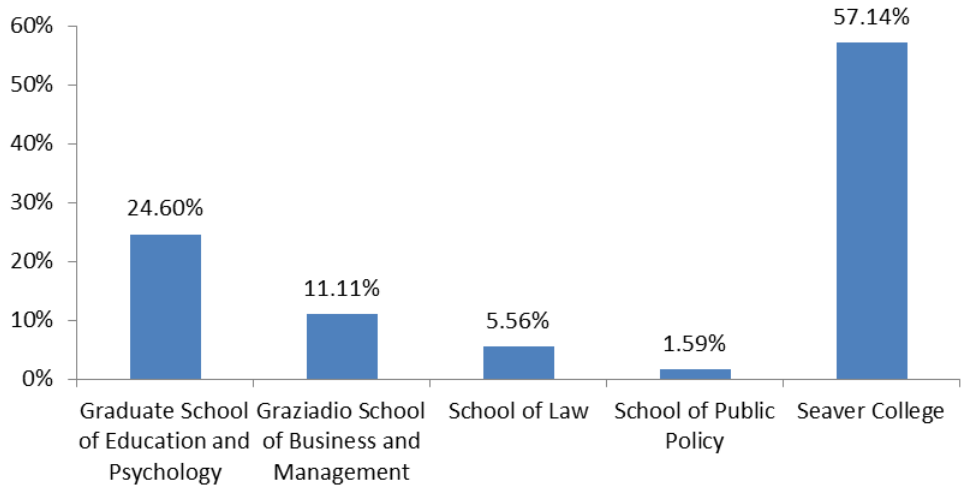
Appendix A

Survey Descriptive Statistics

Presented in the following are highlights from the university wide faculty survey. The sample size was 126, which included all five schools. The survey response percentages do not exactly match the actual faculty distributions by school.

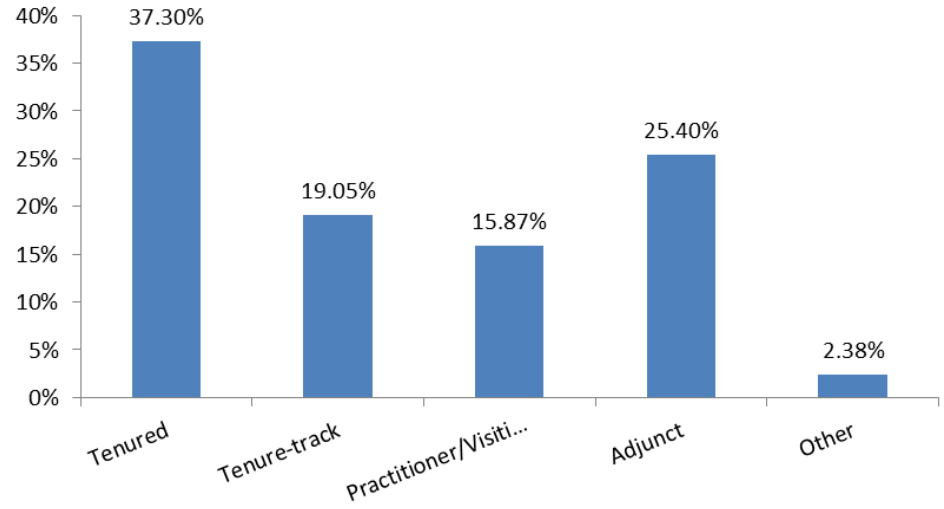
1. Please identify your primary school affiliation. (Required)

Respondents	126



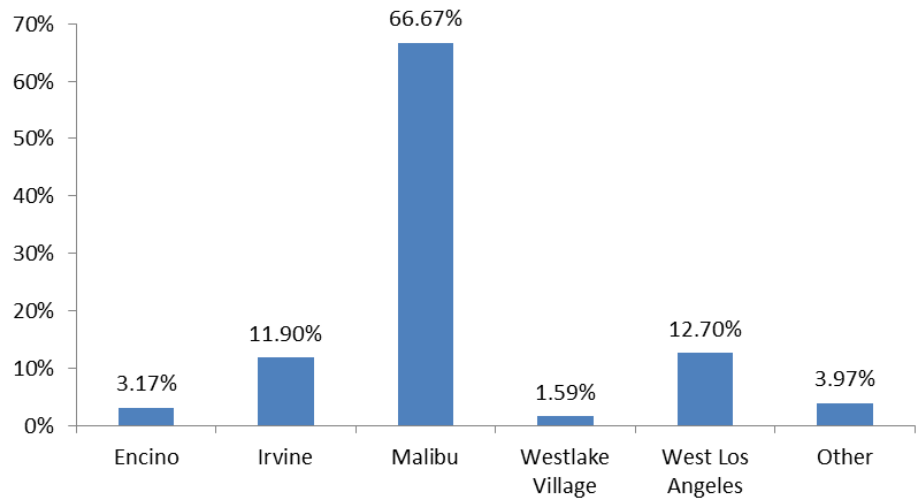
2. Please identify your faculty employment role. (Required)

Respondents	126



3. Please identify your primary campus. (Required)

Respondents	126



4. Rank the following learning technologies in order of importance for enhancing student learning at Pepperdine.(Rank the items from most important (1), next important (2), etc. If you have not used a technology, enter 0.)

#	Answer	1	2	3	4	5	6	7	8	Responses
1	Learning management systems (like Courses/Sakai)	78	6	4	3	0	1	1	0	99
2	Academic social networks (like Google+ or Yammer)	1	3	2	6	9	2	9	0	82
3	Real-time online document sharing (like Google Docs)	6	24	15	13	2	2	2	0	89
4	PowerPoint narration (like VoiceThread)	1	9	7	6	4	9	3	0	86
5	Web conferencing tools (like Elluminate/Collaborate, WebEx, or Skype)	7	23	18	10	3	3	1	0	88
6	Video conferencing (Polycom or Tandberg)	2	8	9	0	6	5	0	3	85
7	Classroom lecture capture (like Panopto or Camtasia Relay)	4	6	6	4	7	5	7	0	86
8	Other (please explain)	8	10	1	4	0	0	0	1	36
	Total	107	89	62	46	31	27	23	4	-

The top 3 choices are:

- Learning Management Systems (like Course/Sakai)
- Real-Time Online Document Sharing (like Google Docs)
- Web Conferencing Tools (like Elluminate/Collaborate, WebEx, or Skype)

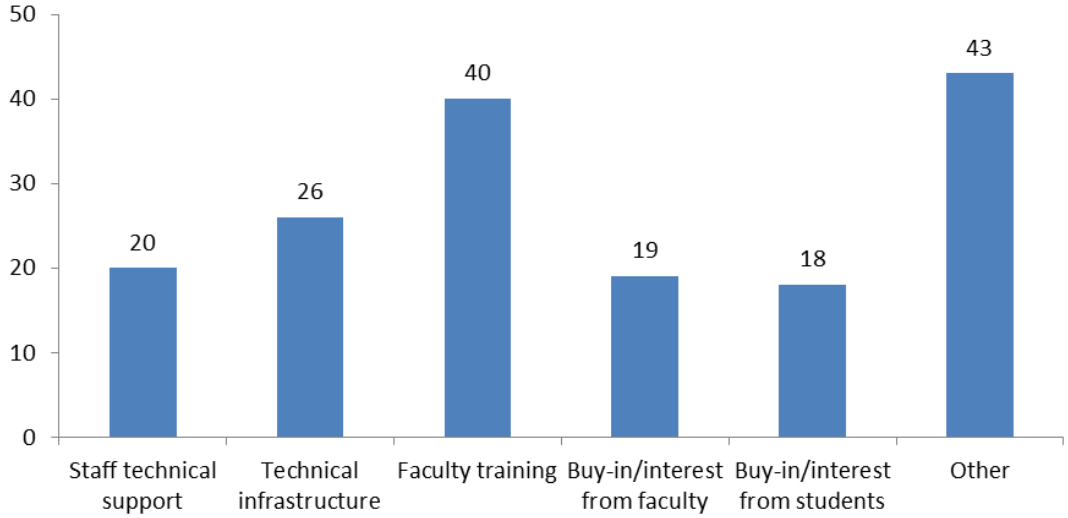
5. Please identify any technologies that you have personally found effective in improving student learning. How do you use it and why is it successful?

- The most mentioned tools are PowerPoint and Sakai, with other answers including online videos, Webassign, Word and iPad. Few say that none of the technologies are useful.
- The Sakai learning management system is used for course communication, posting materials, facilitating discussion and collecting assignments.
- Respondents feel that the technologies are effective in conveying concepts, promoting student discussion, sharing ideas and organizing courses.

6. Please identify any technologies that you have personally found effective in improving classroom management. How do you use it and why is it successful?

- Most of the respondents feel that Sakai is an effective system. It's an easy way to facilitate course communication, posting materials and collecting assignments.
- A few mentioned Elluminate, LMS and iPad.

7. What barriers keep you from more fully embracing online learning tools as a pedagogical vehicle? (Select all that apply.) – (Results are frequencies)

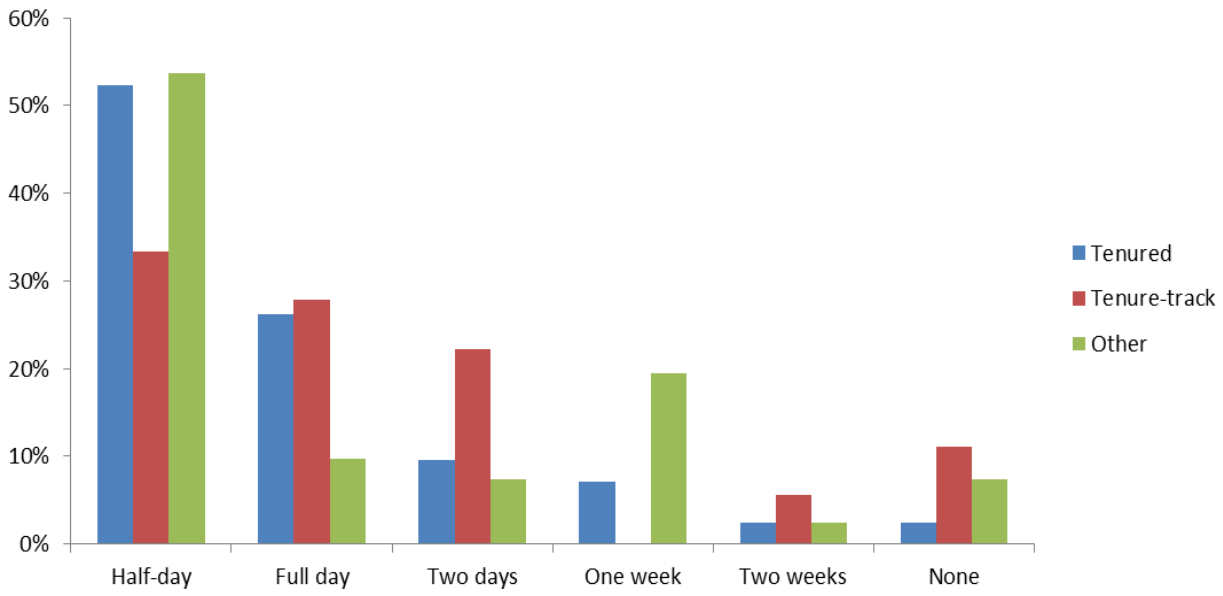


8. Please identify challenges you have personally experienced in adopting or using instructional technologies?

- Time commitment is the primary challenge for most of the respondents. It is time consuming to learn and implement the technology.
- Other answers include lack of training & support, knowledge, and accessibility.

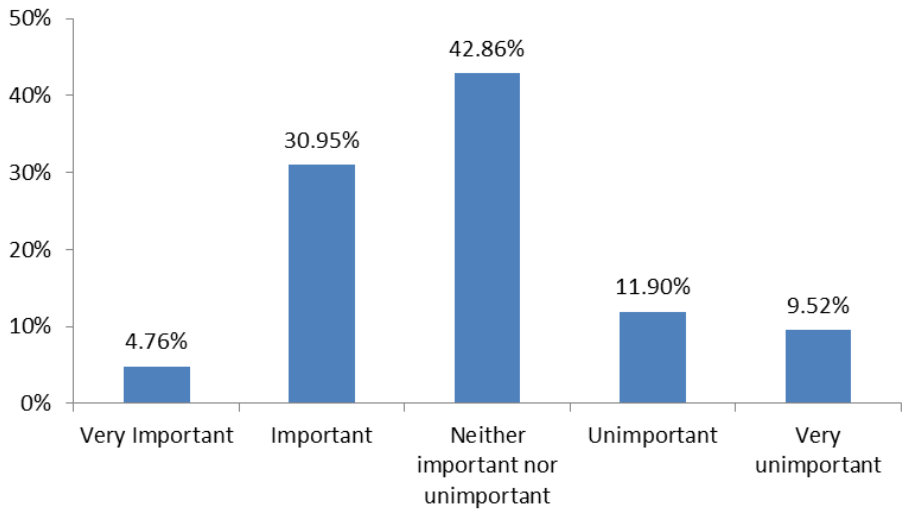
9. To integrate learning tools into your teaching how much training would you be willing to attend?

Respondents	101



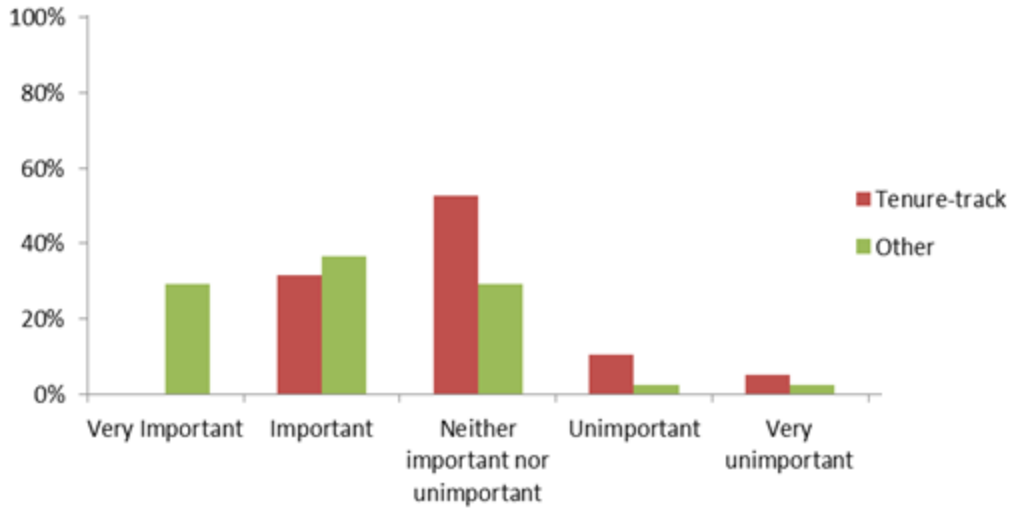
10. FOR TENURED FACULTY ONLY: When evaluating other faculty members (e.g. for tenure or contract renewal), their use of technology in education is:

Respondents	42



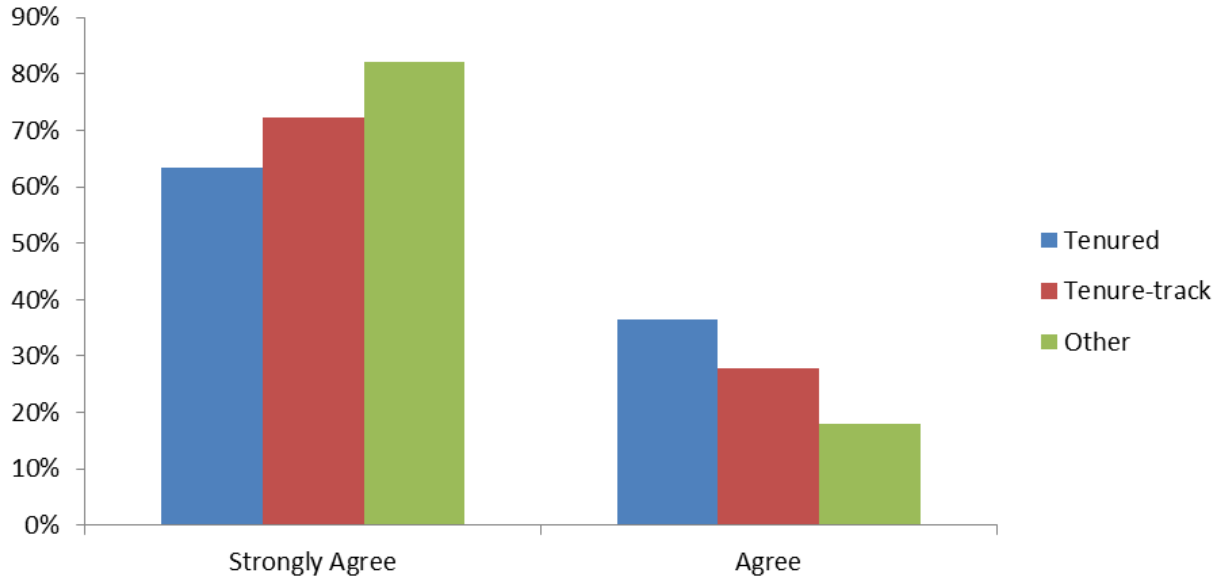
11. FOR TENURE-TRACK / PRACTITIONER / VISITING / ADJUNCT ONLY: When thinking of my evaluators (tenure committee, retention committee, dean, chair, etc.) I believe that they feel that the use of technology in education is:

Respondents	60



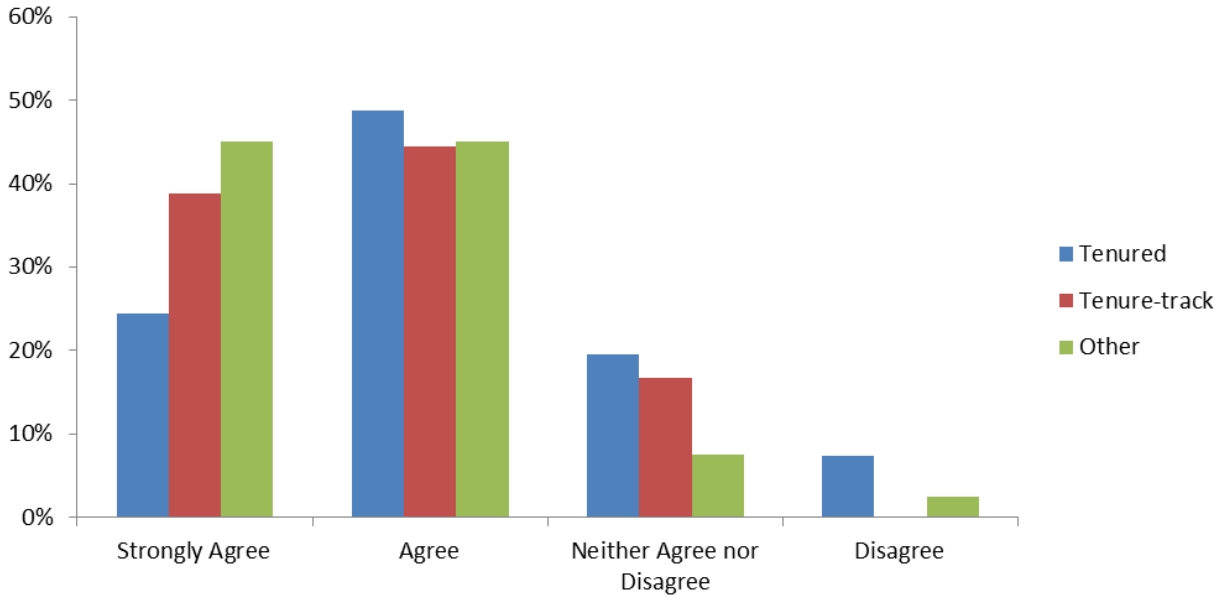
12. The modern workplace is increasingly relying on computer, online, and mobile technologies.

Respondents	98



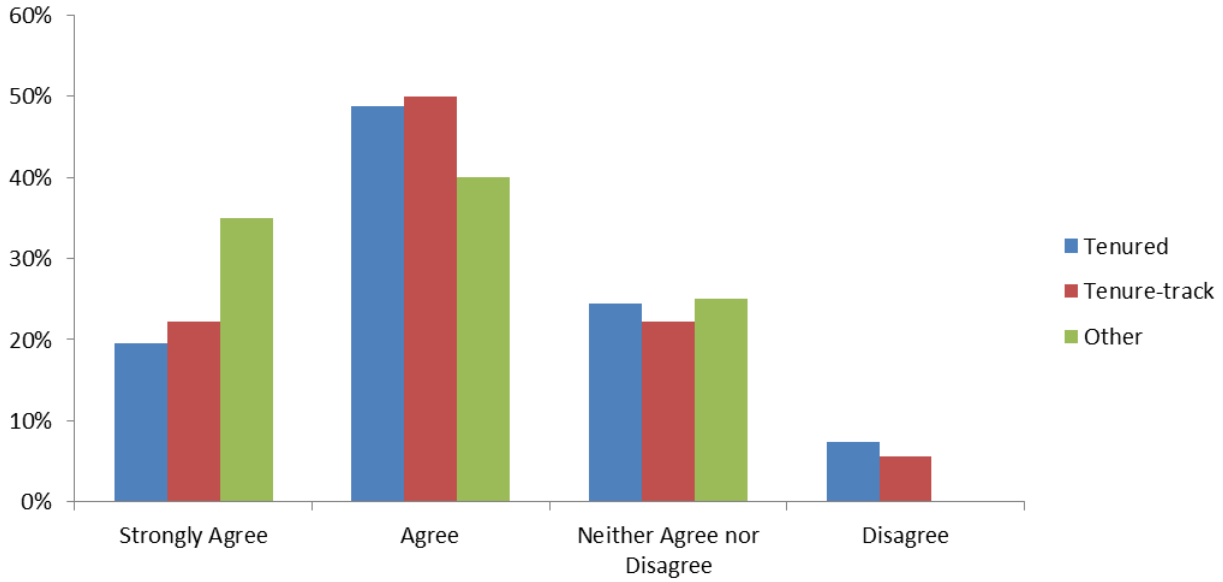
13. Online learning tools can create efficiencies in teaching.

Respondents	99



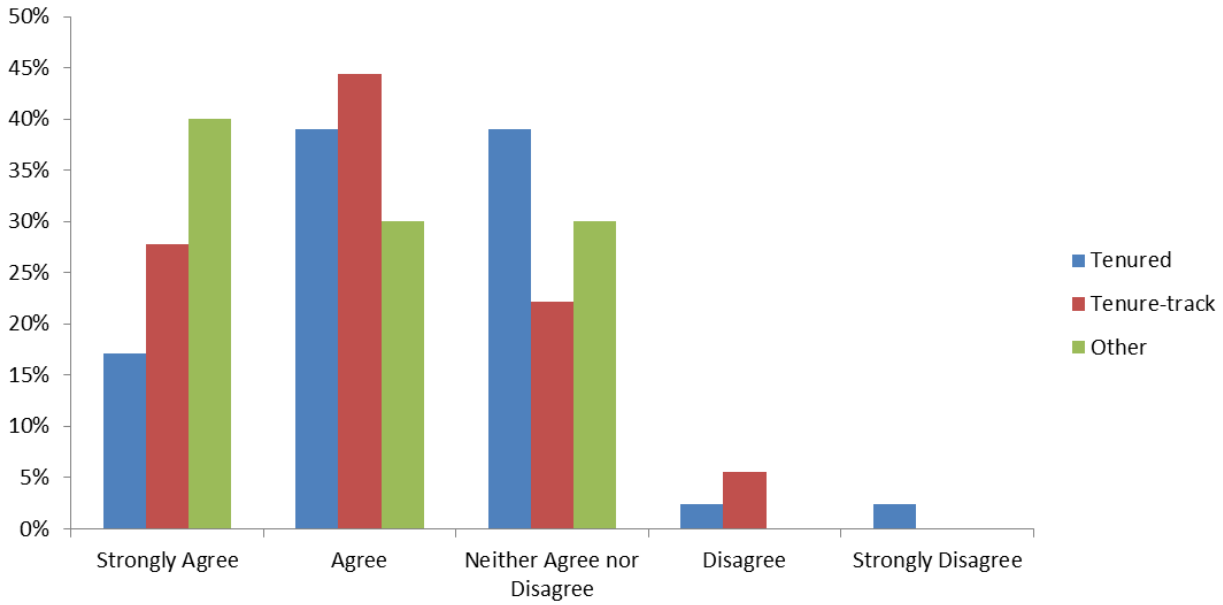
14. Online learning tools can be used to evaluate student learning.

Respondents	99



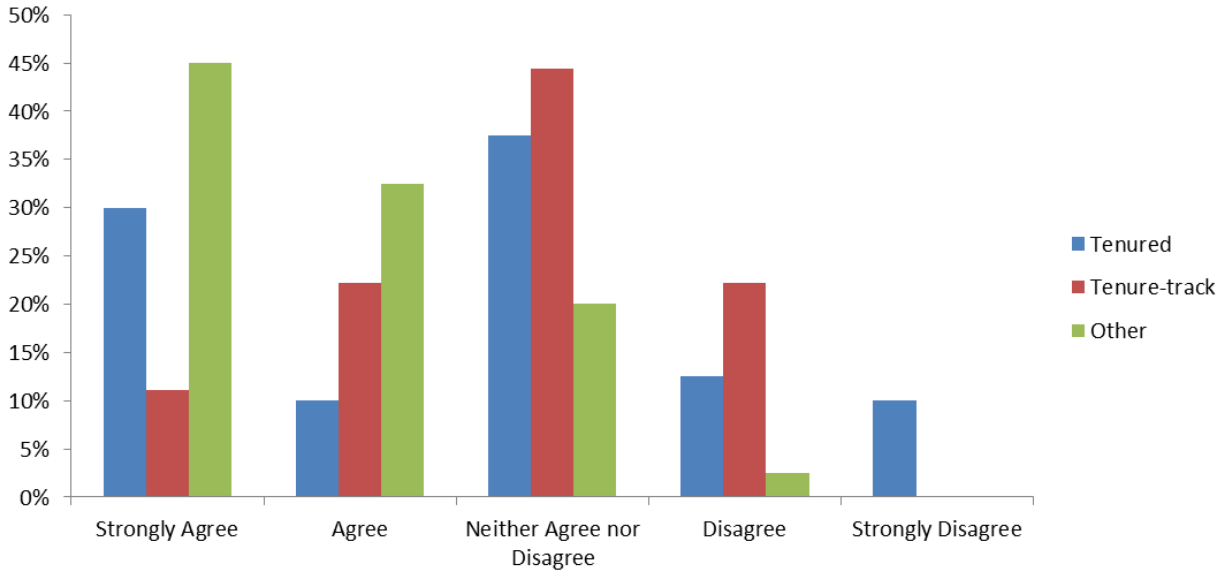
15. Our peer and aspirational institutions are increasing their use of online learning tools to deliver education to their students.

Respondents	99



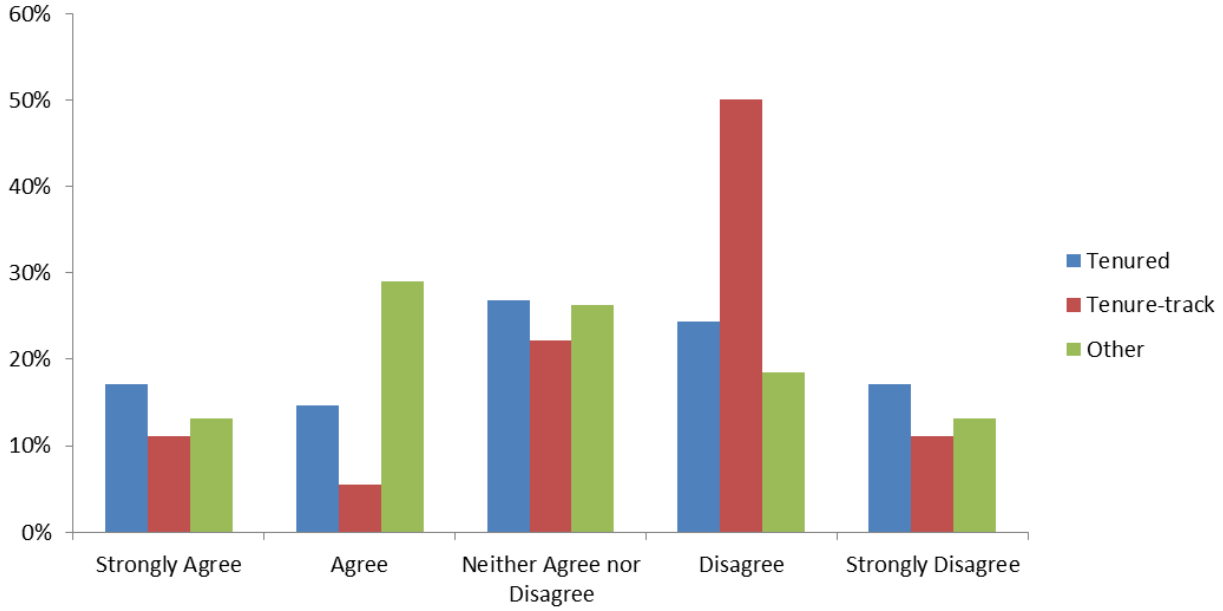
16. I believe that hybrid/blended programs will be important to the future of Pepperdine University.

Respondents	98



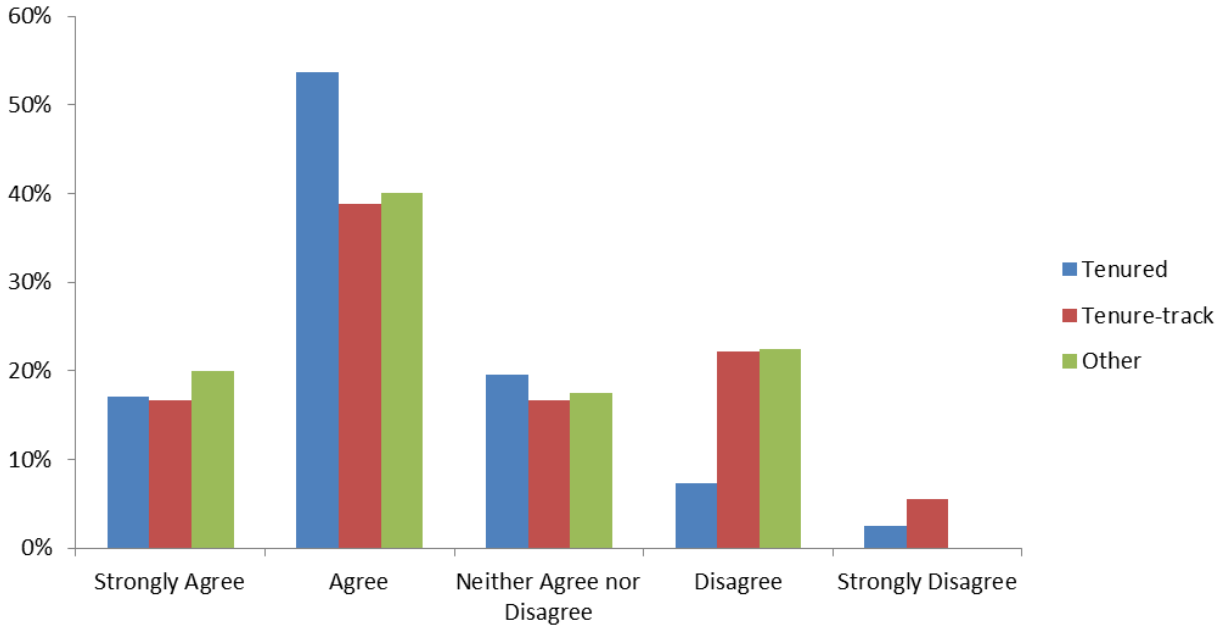
17. I believe that fully online programs will be important to the future of Pepperdine University.

Respondents	97



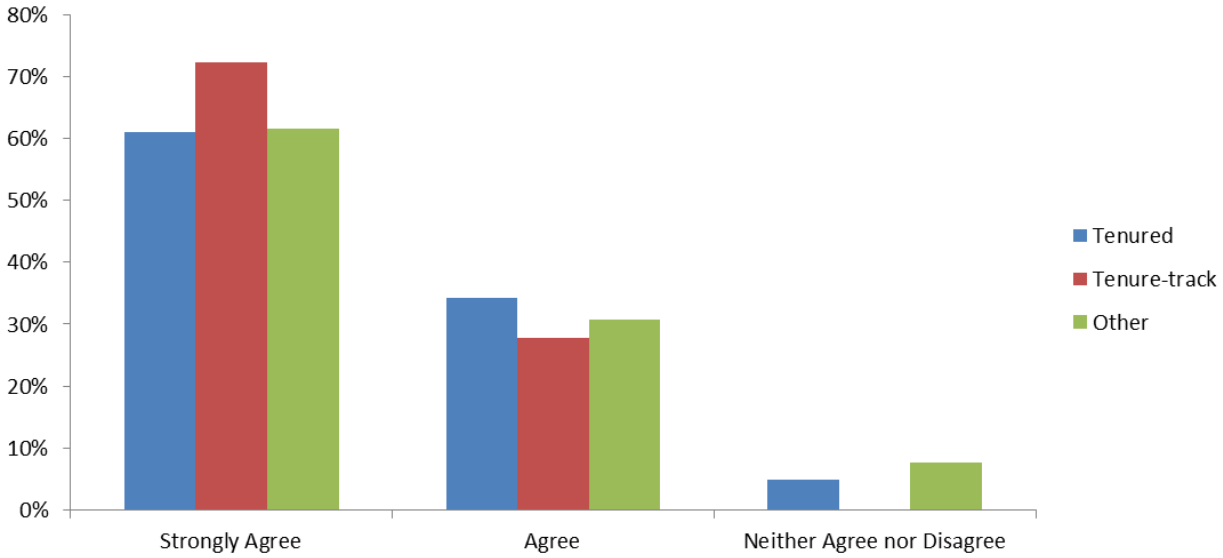
18. The implementation of online learning at Pepperdine University should be gradual.

Respondents	99



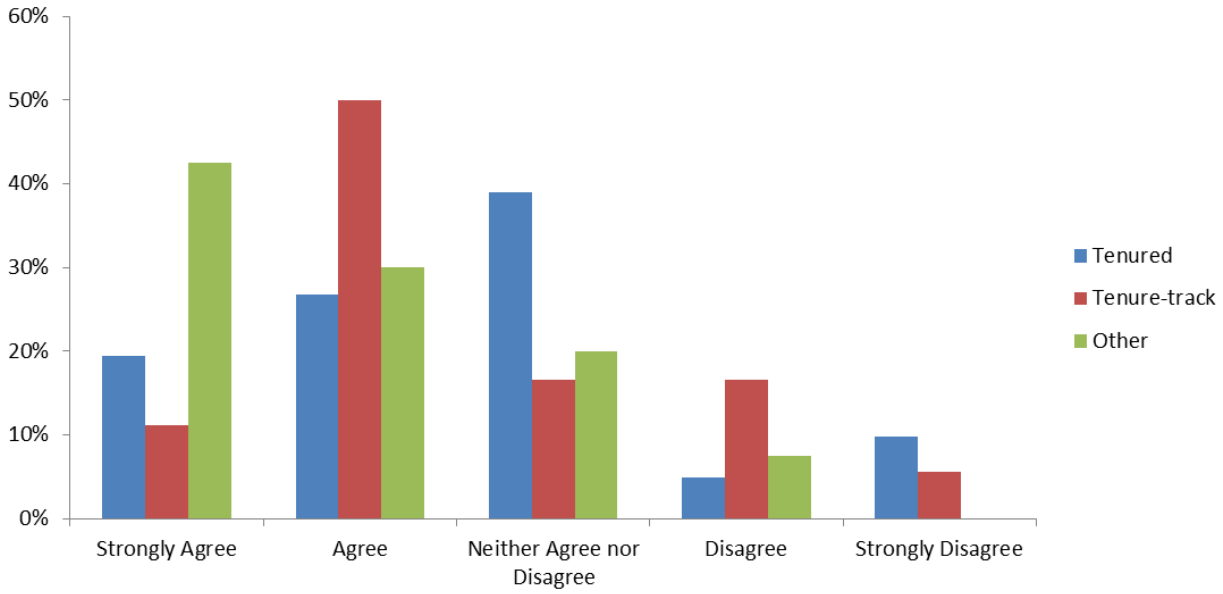
19. Instructors need sufficient training to implement online learning.

Respondents	98



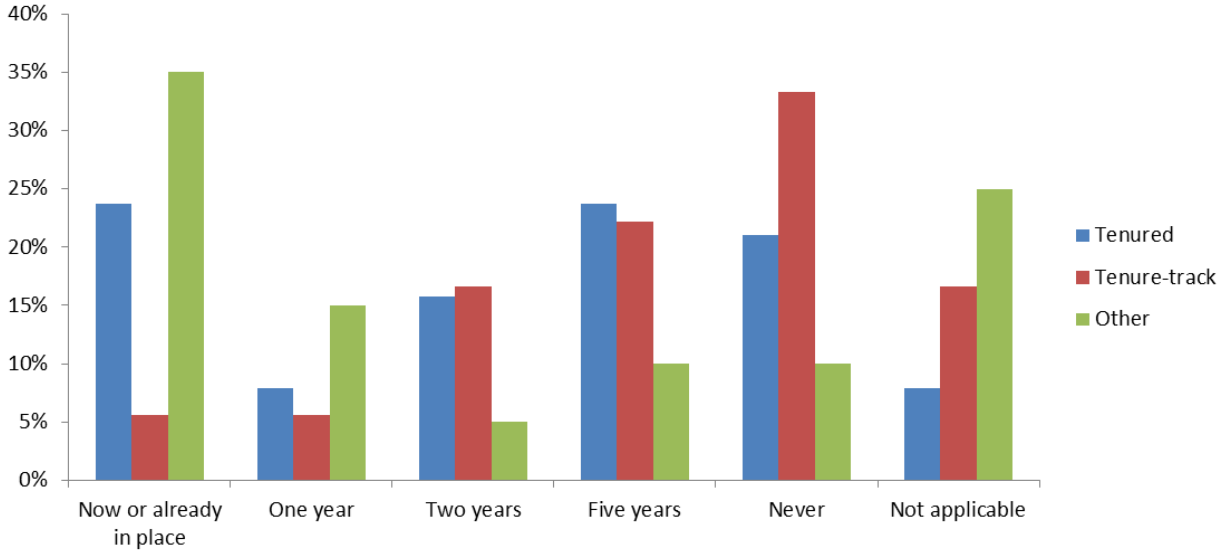
20. Offering online learning will help recruit new students.

Respondents	99



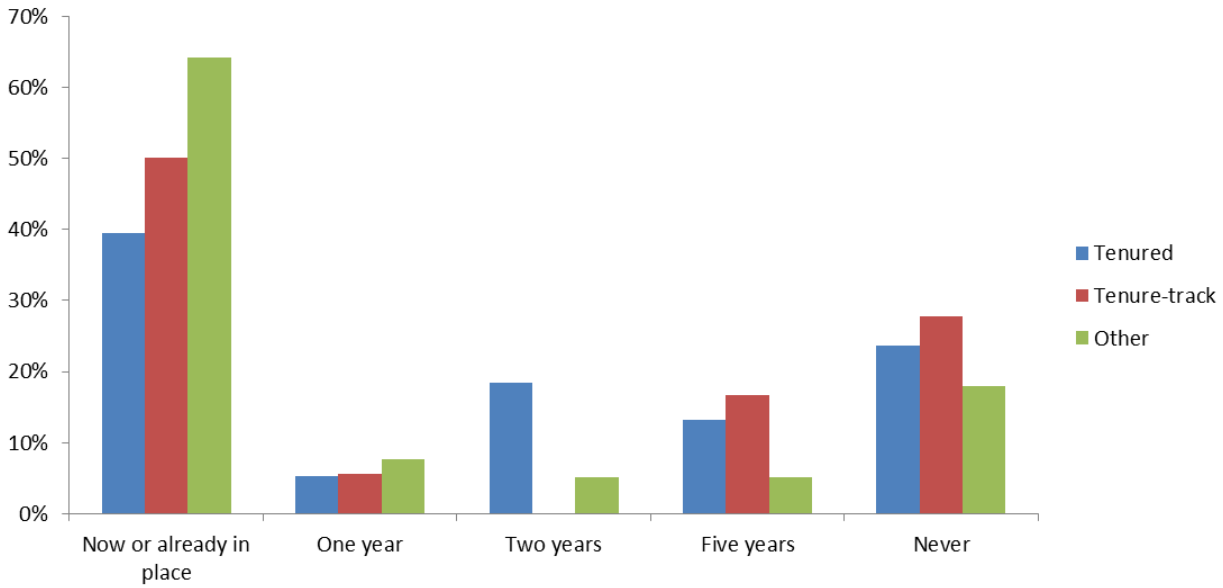
21. How soon will you replace print textbooks with electronic equivalents?

Respondents	80



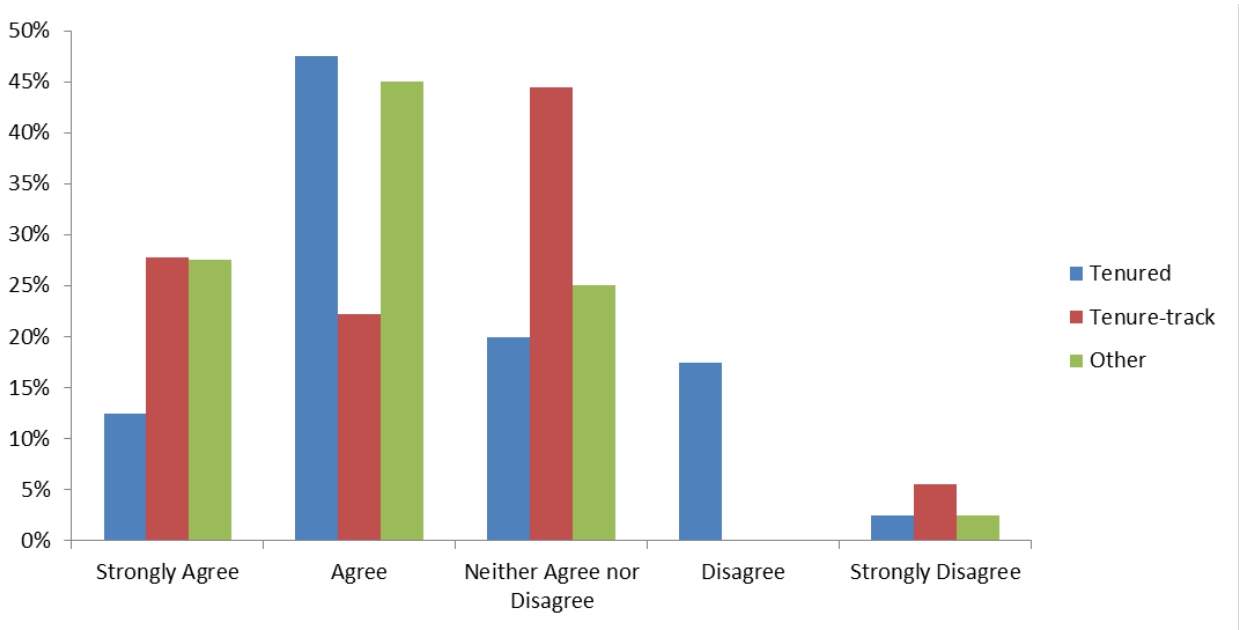
22. How soon before you will present 25% of your class materials online?

Respondents	95



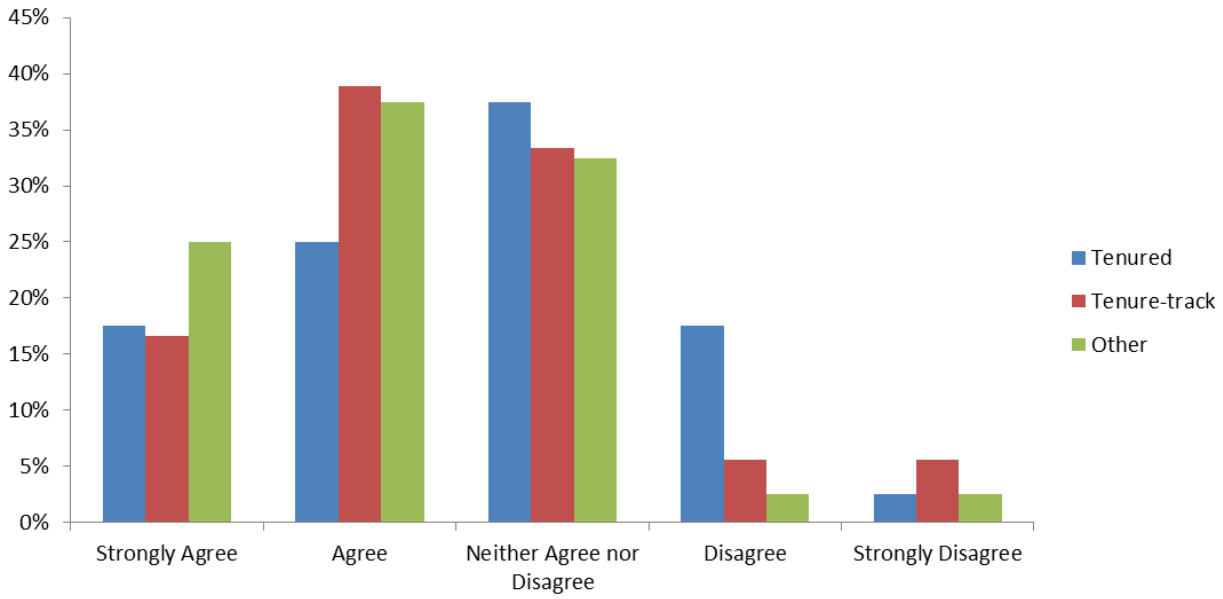
23. A collaborative network of peer faculty at Pepperdine would help me enhance my classes with online learning tools.

Respondents	98



24. A web-based service that offers real-time communication and document sharing with peer faculty at Pepperdine would help me adopt learning technologies.

Respondents	98



25. Any final comments? Please offer any other feedback you may have on the instructional technologies offered by Pepperdine, training and documentation resources, or opinions on current and future trends in education regarding technology.

- The students are increasingly oriented to a dependency on technology. Technology can be beneficial to keep them engaged in learning, but can also decrease the quality of interaction with the professor.
- Technology should not replace personal contact when our goal is to foster a scholarly community. Pepperdine University cannot compete with other schools who already have infrastructure in online technology.
- Our faculty is focused to a large part on scholarship and taking time to incorporate technology into teaching is difficult given the other pressures. The willingness to troubleshoot technology is close to minimal.
- Technology is just a tool. Like any tool - the value of that tool depends on the skill of the person using it.

Appendix B

Survey Questionnaire - Faculty, Learning, and Technology

The purpose of this brief survey is to solicit your perspective on the use of technologies in education. The information received from the survey will be used to support our continuing efforts to improve the educational experience for Pepperdine students.

No individually identifiable information will be solicited in this survey, meaning that responses cannot be associated with any specific respondent. The data will be used by Pepperdine University's Information Technology department, the Technology and Learning Faculty Steering Committee, and select faculty investigators.

At the end of the survey, you will be given the opportunity to enter a drawing for a Kindle Fire. To ensure the anonymity of your survey responses, you will be directed to a separate form where you may submit your name and email address for the drawing.

1. Please identify your primary school affiliation. (Required.)
   a. Graduate School of Education and Psychology
   b. Graziadio School of Business and Management
   c. School of Law
   d. School of Public Policy
   e. Seaver College

2. Please identify your faculty employment role. (Required.)
   a. Tenured
   b. Tenure-track
   c. Practitioner/Visiting
   d. Adjunct
   e. Other (please _____ explain)

3. Please identify your primary campus. (Required.)
   a. Encino
   b. Irvine
   c. Malibu
   d. Westlake Village
   e. West Los Angeles
   f. Other (please _____ explain)

4. Rank the following learning technologies in order of importance for enhancing student learning at Pepperdine.

(Rank the items from most important (1), next important (2), etc. If you have not used a technology, enter 0.)

- □ Learning management systems (like Courses/Sakai)
- □ Academic social networks (like Google+ or Yammer)
- □ Real-time online document sharing (like Google Docs)
- □ Web conferencing tools (like Elluminate/Collaborate, WebEx, or Skype)
- □ Video conferencing (Polycom or Tandberg)
- □ Classroom lecture capture (like Panopto or Camtasia Relay)
- □ Other (please ☐ explain)

5. Please identify any technologies that you have personally found effective in improving student learning. How do you use it and why is it successful?

6. Please identify any technologies that you have personally found effective in improve classroom management. How do you use it and why is it successful?

7. What barriers keep you from more fully embracing online learning tools as a pedagogical vehicle? (Select all that apply.)

- □ Staff technical support
- □ Technical infrastructure
- □ Faculty training
- □ Buy-in/interest from faculty
- □ Buy-in/interest from students
- □ Other (please ☐ explain)

8. Please identify challenges you have personally experienced in adopting or using instructional technologies?

9. To integrate learning tools into your teaching how much training would you be willing to attend?
   a. Half-day
   b. Full day
   c. Two days
   d. One week
   e. Two weeks
   f. None

10. FOR TENURED FACULTY ONLY: When evaluating other faculty members (e.g. for tenure or contract renewal), their use of technology in education is:
    a. Very Important
    b. Important
    c. Neither important nor unimportant
    d. Unimportant
    e. Very unimportant

11. FOR TENURE-TRACK / PRACTITIONER / VISITING / ADJUNCT ONLY: When thinking of my evaluators (tenure committee, retention committee, dean, chair, etc.) I believe that they feel that the use of technology in education is:
    a. Very important
    b. Important
    c. Neither important nor unimportant
    d. Unimportant
    e. Very unimportant

12. The modern workplace is increasingly relying on computer, online, and mobile technologies.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

13. Online learning tools can create efficiencies in teaching.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

14. Online learning tools can be used to evaluate student learning.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

15. Our peer and aspirational institutions are increasing their use of online learning tools to deliver education to their students.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

16. I believe that hybrid/blended programs will be important to the future of Pepperdine University.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

17. I believe that fully online programs will be important to the future of Pepperdine University.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

18. The implementation of online learning at Pepperdine University should be gradual.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

19. Instructors need sufficient training to implement online learning.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

20. Offering online learning will help recruit new students.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

21. How soon will you replace print textbooks with electronic equivalents?
    a. Now or already in place
    b. One year
    c. Two years
    d. Five years
    e. Never
    f. Not applicable

22. How soon before you will present 25% of your class materials online?
    a. Now or already in place
    b. One year
    c. Two years
    d. Five years
    e. Never

23. A collaborative network of peer faculty at Pepperdine would help me enhance my classes with online learning tools.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

24. A web-based service that offers real-time communication and document sharing with peer faculty at Pepperdine would help me adopt learning technologies.
    a. Strongly Agree
    b. Agree
    c. Neither Agree nor Disagree
    d. Disagree
    e. Strongly Disagree

25. Any final comments? Please offer any other feedback you may have on the instructional technologies offered by Pepperdine, training and documentation resources, or opinions on current and future trends in education regarding technology.

Appendix C

Internal Survey Consistency

Question Block 1: 12, 15, 16, 17, 20

Theme: Online learning is becoming increasingly important.

Reliability Statistics

Cronbach's Alpha	N of Items
.772	5

Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Q12	9.8947	12.031	.398	.784
Q15	9.0632	10.230	.447	.760
Q16	8.8526	7.318	.767	.639
Q17	8.0632	7.656	.607	.712
Q20	8.8421	8.390	.595	.712

Question Block 2: 13, 14

Theme: Online learning is helpful for both teaching and learning.

Reliability Statistics

Cronbach's Alpha	N of Items
.775	2

Question Block 3: 23, 24

Theme: Faculty collaboration support networks are helpful.

Reliability Statistics

Cronbach's Alpha	N of Items
.743	2

Appendix D

Binary Regression Analysis

Omnibus Tests of Model Coefficients

		Chi-square	df	Sig.
Step 1	Step	15.816	3	.001
	Block	15.816	3	.001
	Model	15.816	3	.001

Classification Table[a]

Observed			Predicted		
			Q16		Percentage Correct
			Disagree	Agree	
Step 1	Q16	Disagree	34	11	75.6
		Agree	20	33	62.3
	Overall Percentage				68.4

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)	95% C.I.for EXP(B)	
								Lower	Upper
Step 1[a]	Q1			13.677	3	.003			
	Q1(1)	2.035	.620	10.754	1	.001	7.650	2.267	25.810
	Q1(2)	1.447	.655	4.875	1	.027	4.250	1.177	15.352
	Q1(3)	1.041	.783	1.770	1	.183	2.833	.611	13.140
	Constant	-.531	.282	3.546	1	.060	.588		

a. Variable(s) entered on step 1: Q1.

Target Variable (Q16): Blended/Online programs are important to the future of Pepperdine
Predictor Variable Q1: (1)Graduate School of Education and Psychology; (2)Graziadio School of Business and Management; (3)School of Law & School of Public Policy; Reference: Seaver College

Appendix E

Multinomial Regression Analysis

Model Fitting Information

Model	Likelihood Ratio Tests		
	Chi-Square	df	Sig.
Final	28.628	12	.004

Parameter Estimates

Q16[a]		B	Std. Error	Wald	df	Sig.	Exp(B)	95% Confidence Interval for Exp (B)	
								Lower Bound	Upper Bound
Agree	Intercept	1.012	.584	3.002	1	.083			
	[Q1=1]	17.912	.692	669.879	1	.000	60118995.88	15485723.27	233395212.0
	[Q1=2]	18.154	.787	532.716	1	.000	76626571.75	16400337.02	358018953.6
	[Q1=3]	17.259	1.205	205.144	1	.000	31296485.63	2949846.421	332041019.5
Disagree	Intercept	.405	.645	.395	1	.530			
	[Q1=1]	16.909	1.164	211.042	1	.000	22043631.82	2251935.292	215779603.3
	[Q1=2]	18.473	.882	438.748	1	.000	105361536.2	18706515.36	593432453.1
	[Q1=3]	.511	5867.379	.000	1	1.000	1.667	.000	.[c]
Neither Agree nor Disagree	Intercept	1.792	.540	11.007	1	.001			
	[Q1=1]	16.621	.750	490.650	1	.000	16532723.87	3798745.448	71952954.52
	[Q1=2]	15.988	1.149	193.730	1	.000	8780128.013	924167.200	83416342.79
	[Q1=3]	17.577	.858	419.729	1	.000	43032667.74	8007437.936	231261298.3
Strongly Agree	Intercept	.811	.601	1.821	1	.177			
	[Q1=1]	19.068	.000	.	1	.	191044809.1	191044809.1	191044809.1
	[Q1=2]	18.761	.000	.	1	.	140482048.2	140482048.2	140482048.2
	[Q1=3]	18.846	.000	.	1	.	153005040.9	153005040.9	153005040.9

a. The reference category is: Strongly Disagree.

c. Floating point overflow occurred while computing this statistic. Its value is therefore set to system missing.

Target Variable (Q16): Blended/Online programs are important to the future of Pepperdine

Predictor Variable Q1: (1)Graduate School of Education and Psychology; (2)Graziadio School of Business and Management; (3)School of Law & School of Public Policy; Reference: Seaver College

Appendix F

Bibliography

1. Abell, M. 2006. Individualizing learning using intelligent technology and universally designed curriculum. *The Journal of Technology, Learning, and Assessment*, 5(3), 1.
2. Al-Zoube, M. et al. 2010. Cloud computing based E-Learning system. *International Journal of Distance Education Technologies*, 8(2), 58.
3. Alexakos, C. et al. 2006. Integrating e-learning environments with computational intelligence assessment agents. *World Academy of Science, Engineering and Technology*, 19,117.
4. Allen, I.; Seaman, J. 2011. Going the distance, Online education in the United States, Sloan Institute.
5. Allen, I.; Seaman, J.; Garrett, R .2007. Blending In: The extent and promise of blending learning in the United States. The Sloan Consortium.
6. Ash, K. 2009. Full speed ahead in higher education. Education Week, 29(26), 30.
7. Benson, R.; Samarawickrema, G. 2009. Addressing the context of e-learning using transitional distance theory. *Distance Education*, 30(1), 5.
8. Bersin, J.; Mallon, D. 2011. The future of the LMS. *Chief Learning Officer*, 10(2), 12.
9. Billsberry, J., Rollag, K.2010. New technological advances applied to management education. *Journal of Management Education*, 34(2), 329.
10. Brett, C.2009. Educational perspectives on digital communications technologies. *E-Learning*, 6(3), 281.
11. Brown, Q. 2008. Interface challenges for mobile intelligence tutoring systems. *International Conference on Intelligent Tutoring Systems*, 693.
12. Casquero, O.; et al. 2008. iGoogle and gadgets as a platform for integrating institutional and external services. Universidad del País Vasco, 9, 5.
13. Chang, C. 2010. Acceptability of an asynchronous learning forum on mobile devices. Behavior *and Information Technology*, 29(1), 23.
14. Cassi, L.; et al. 2008. Research networks as infrastructure for knowledge diffusion In European Regions*. Economics of Innovation and New Technology*, 7/8, 663.
15. Chou, A.; Chou, D. 2011. Course Management Systems and Blended Learning: An Innovative Learning Approach. *Decision Sciences Journal of Innovative Education*, 9(3),463.
16. Daniel, J.; Kanwar, A.; Uvalic-Trumbic, S. 2006. A tectonic shift in global higher education. *Change Magazine*, July/ August.
17. Delone, W., Mclean, E. 2003. The Delone and Mclean Model of Information Systems Success: A Ten-Year Update. *Journal of Management information Systems*, 19(4), 9.
18. Demski, J. 2010. Ed tech experts choose top tools. *T.H.E. Journal*, 37(7), 32.
19. Diziol, D.; Walker, E.; Rummel, N.; Koedinger, K. 2010. Using intelligent tutor technology to implement adaptive support for student collaboration. *Educational. Psychology Review*, 22(1), 89.
20. Doh, J. 2010. Why aren't business schools more global and what Can management educators do about it? Academy of Management Learning & Education, 9(2), 165.
21. Dykman, C.; Davis, C. 2008. The shift to online education. *Journal of Information Systems Education*, 19(1), 11.
22. Gairin, J. et al. 2009. Who exactly is the moderator? A consideration of online knowledge management network moderation in educational organizations. *Computers & Education*, 55, 304.
23. Graesser, A. 2005. Auto Tutor: An intelligent tutoring system with mixed-initiative dialogue. *IEEE Transactions on Education*, 48(4), 612.

24. Conole, G.; Culver, J.2009. Cloudworks: Social networking for learning design. Australasian *Journal of Educational Technology*, 25(5), 763.
25. Graves, W. 1999. The instructional management system cooperative: converting random acts of progress into global progress. *Educom Review*, 34(6), 32.
26. Hildreth, P.; Kimble, C. 2004. Knowledge networks: Innovation through communities of practice. Ideas Group.
27. Hollenbeck, C.; et al. 2009. E-Collaborative networks: A Case study on the new role of the sales force. *Journal of Personal Selling and Sales Management*, 29(2), 125.
28. Hughes, G.: 2007. Using hybrid learning to increase learner support and improve retention. *Teaching in Higher Education*. 12(3), 15.
29. Hur, J.; Brush, T. 2009. Teacher participation in online communities: Why do teachers want to participate in self-generated online communities of K-12 teachers? *Journal of Research on Technology in Education*, 41(3), 279.
30. Hunyadi, D.; Pah, I. 2008. Ontology used in an e-learning multi-agent architecture. WSEAS *Transactions on Information Science & Applications*, 5(8), 1302.
31. Iorio, J.; et al. 2011. Factors impacting usage patterns of collaborative tools designed to support global virtual design project networks. Journal of Information Technology in Construction. 16,209.
32. Israel, J.; Aiken, R. 2007. Supporting collaborative learning with an intelligent web-based system. International Journal of Artificial Intelligence and Education. 77(1), 3.
33. Jacobs, W.; et al. 2011. The location and global network structure of maritime advanced producer services. Urban Studies, 48(13), 2749.
34. Jensen, L. 2010. Extend instruction outside the classroom: Take advantage of your learning management system. Computers in Libraries, 30(6), 76.
35. Karagiorgi, Y.; Lymbouridou, C. 2009. The story of an online teacher community in Cyprus. Professional Development in Education, 35(1)1, 119.
36. Kleiman, L., Kass, D.2007. Giving MBA programs the third degree. Journal of Management Education, 31(1), 81.
37. Kock, N.; Antunes, P. 2007. Government Funding of E-Collaboration Research in the European Union: A Comparison with the United States Model, International Journal of E-Collaboration, (2), pp. 36-47.
38. Konstantinidis, A.; Papadopoulos, P.; Tsiatsos, T.; Demetriadis, S. 2011. Selecting and evaluating a learning management system: A Moodle evaluation based on instructors and students. International Journal of Distance Education Technologies, 9(3), 13.
39. Kracznski, D.; Kelly, Melissa. 2004. Curriculum development for teaching qualitative data analysis online. International Conference on Qualitative Research in IT & IT in Qualitative Research.
40. Labi, A. 2009. Columbia University to open network of international collaborative-research centers. Chronicle of Higher Education, 55(30), A20.
41. Landoli, L.; et al.2012. A debate dashboard to enhance online knowledge sharing. The Journal of Information and Knowledge Management Systems, 42(1), 67.
42. Leelawong, K., Biswas, G. 2008. Designing learning by teaching agents: The Betty's Brain System. International Journal of Artificial Intelligence in Education, 18(3), 181.
43. Lin, F. 2005. Designing distributed learning environments with intelligent software agents. Information Science Publishing, Hershey, Pennsylvania.
44. Mackey, J.; Evans, T. 2011. Interconnecting networks of practice for professional learning. International Review of Research in Open and Distance Learning, 12(3), 1.
45. Maguad, B. 2011. Deming's profound knowledge: Implications for higher education. Education, 131(4). 768.
46. Manouselis, N.; et al. 2010. Collaborative Recommendation of E-Learning Resources: An Experimental Investigation. Journal of Computer Assisted Learning, 26(4), 227.

47. Matzat, U. 2004. Academic communication and internet discussion groups: transfer of information or creation of social contracts? Social networks, 26(3), 221.
48. McDuffie, R.; Smith, S.; Murphy, L. 2006. Impact of an audit reporting expert system on learning performance: a teaching note. Accounting Education, 15(1), 189.
49. Najjar, M. 2008. On scaffolding adaptive teaching prompts within virtual labs. Journal of Distance Education Technologies, 6(2), 35.
50. Neary, M.; Saunders, G. 2011. Leadership & learning landscapes: the struggle for the idea of the university. Higher Education Quarterly, 65(4), 333.
51. Normand, C., Littlejohn, A., Falconer, I. 2008. A model for effective implementation of flexible program delivery. Innovations in Teaching and Education International, 45(1), 25.
52. Ping, Z.; Bhattacharyya, S. 2008. Students' views of a learning management system: A longitudinal qualitative study. Communications of AIS, 23, 351.
53. Post, G.; Whisenand, T. 2005. An expert systems helps students learn database design. Decision Sciences Journal of Innovative Education, 3(2), 273.
54. Rhee, B. et al. 2007. Technology Readiness, Learning Goals, and eLearning. Searching for Synergy. Decision Sciences Journal of Innovative Education, 5(1), 127.
55. Roblyer, M.; et al. 2010. Findings on Facebook in higher education: A comparison of college faculty and student uses and Perceptions of Social Networking Sites. Internet and Higher Education, 13(3), 134.
56. Riemer, K. ; Klein, S. 2008. Is the V-form the next generation organization? An Analysis of challenges, pitfalls and remedies of ICT-enabled virtual organizations based on social capital theory. Journal of Information Technology, 23 (3).
57. Rogers, E. 2003. Diffusion of innovations (5th ed.). New York: Free Press.
58. Romero, D.; et. al. 2009. Mechanisms for assessing and enhancing organizations' readiness for collaboration in collaborative networks. International Journal of Production Research, 47 (17), 4691.
59. Roscoe, R.; Chi, M. 2007. Understanding tutor learning: Knowledge-building and knowledge-telling in peer tutors' explanations and questions. Review of Educational Research, 77(4), 534.
60. Rusinko, C. 2010. Integrating sustainability in management and business education: A matrix approach. Academy of Management Learning & Education, 2010, 9(3), 507.
61. Sahin, I.; Thompson, A. 2006.Using Rogers' theory to interpret instructional computer use by COE faculty. Journal of Research on Technology in Education, 39(1), 104.
62. Sato, M. et al. 2011. Ninf: A Network based information library for global world-wide computing infrastructure. Lecture Notes in Computer Science, 1225, 491.
63. Sayers, N. 2011. Maximizing the effectiveness of a scenario planning process. *Perspectives*, 4(1).
64. Schlager, M.; et al. 2009. Analyzing online teacher networks: Cyber networks require cyber research tools. *Journal of Teacher Education*, 60(1), 86.
65. Scimeca, S.; et al. 2009. European Schoolnet: Enabling school networking. *European Journal of Education*, 44 (4), 475.
66. Scott, A. 2012. A review of virtual and collaborative networks. IPCSIT, 24
67. Shirani, A. et al. 1999. Task and technology fit: a comparison of two technologies for synchronous and asynchronous group communication. *Information & Management*, 36(3), 139.
68. Shroff, R., Vogel, D., Coombes, J. 2007. Student E-Learning Intrinsic Motivation: A Qualitative Study. *Communications of the Association for Information Systems*, 19, 241.
69. Tang, M., Byme, R.2007. Regular Versus Online Versus Blended: A Qualitative Description of the Advantages of the Electronic Modes and a Quantitative Evaluation. *International Journal on ELearning*, 6(2), 257.

70. Thomas, P.2011. Cloud computing: A potential paradigm for practicing the scholarship of teaching and learning. *The Electronic Library*, 29(2).
71. Traxler, J. 2007. Current state of mobile learning. *International Review on Research in Open and Distance Learning*, 8(2), 52.
72. VanLehn, K. 2006. The behavior of tutoring systems. *International Journal of Artificial Intelligence in Education,* 16(3), 227.
73. Veletsianos, G.; Yersimou, T.; Doering, A. 2007.The role of intelligent agents on learner performance*. Learning Organizations*, 14(4), 300.
74. Veronica Diaz.2011. Cloud-Based technologies: Faculty development, support, and implementation. *Journal of Asynchronous Learning Networks*, 15(1), 95.
75. Ward, L.2011. Developing and engaging in collaborative networks to support student employability and work placements: Examples from a local, national and international perspective. WACE 17th World Conference on Co-operative & Work Integrated Education, 15, June.
76. Ward, K. 2011. A proposed measure of IT infrastructure flexibility in the global networked firm: Extending the IT infrastructure measure of reach and range. *The Clute Institute*. 16(1).
77. Wheeler, B.; Waggener, S. 2009. Above-campus services: Shaping the promise of cloud computing for higher education. *Educause Review*, 44(6), 52.
78. Xiaoqing, L.2007. Intelligent Agent Supported Online Education*. Decision Sciences Journal of Innovation Education*, 5(2), 331.
79. Yoon, S.; Ardich, A. 2010. Situated learning and activity theory-based approach to designing integrated knowledge and learning management systems. *International Journal of Knowledge Management*, 6(4), 47.
80. Yueh, H.; Shihkuan, H. 2008. Designing a learning management system to support instruction. *Communications of the ACM*, 51(4), 59.