

Online Course Opinion Survey System

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Abstract

Currently, Pace University, and many other universities as well, conducts manual course-end surveys in which each student completes a paper survey form to evaluate each of the courses they have taken during a particular semester. We describe here the development of an Online Course Opinion Survey System designed to automate this manual survey process by putting the entire evaluation system online. Students login to take the survey through a Web interface, results are retained in a database, and survey statistics can be accessed on the Website. This system will not only help the students to select their future courses but also give useful feedback to the administration and faculty. We have run preliminary tests on the system, and we intend to run in parallel both the old and new survey systems on all Pace University CSIS courses at the end of this semester for a department-wide test. We anticipate that the whole university will soon move to an online system.

Introduction

The Pace University Assessment Office, whose goal is to monitor and assess the course offerings in order to improve the instruction and curriculum, collaborated with us in the design of the Online Course Opinion Survey System. The purpose of this survey is to easily inform faculty and administration at Pace how the students feel about a course, how they like the facilities provided by the university and also to evaluate how effective a professor's teaching is [9]. The system consists of several simple questions, which are both open and closed ended, and are geared towards soliciting the opinion of current students, while ensuring their anonymity. Students taking the online survey logon to the Website and complete the survey, which is stored in a database, and subsequently collated and analyzed [4]. The database maintains historical survey results for courses by the following categories: department, course code, semester, year and instructor. Comparative analysis of courses taken in the current academic year, by department and sequential courses are provided. The system also allows an administrator to create or modify questions for the students and customize reports and graphs using the online survey system. The system allows the instructor to view the results of the course. In addition, the administrator of the online survey system may view all results by instructor, course and department. The results of the students' answers are compiled, statistically analyzed by the program and displayed both numerically and graphically. How the results are displayed is based on the needs of Pace University's administration. All

reports are created dynamically, meaning that the reports are calculated in real time, based on information that resides in the database at that moment [9]. Any person that runs a report or queries certain criteria will receive back the most current data that is in the system. This is a major improvement over the current system, which is very time consuming, because of the administrative duties needed to calculate the different statistics in a report or graph. The online system at Pace is adaptable and can be applicable to many different organizations or businesses with minimal code and database modifications.

The current system demands a manual effort, where a graduate assistant distributes survey forms in class, and students have to complete the form at that particular time and submit it back to the university. This is a very time consuming administrative task for the students who could be spending their time researching or studying important concepts regarding their major. Also, the users have to be in class when this survey is distributed to them. A person who is absent on the day of the survey loses his / her opportunity to express their opinion [4]. The online student survey system will enable the students to take this survey from any remote location that has an Internet connection and a current internet browser [8]. This will allow the users to take this survey at any time, from any location, including the privacy of their homes. This will also help in Pace's Distance Learning Program where the users can submit this survey on-line for the classes that they are taking. The online survey system will allow the students a timeslot of up to one week to take the survey so that it is made easier for people who are taking distance learning courses or work full time and find it difficult to make it to every class. This will add minutes of teaching time to every classroom and make it easier for the students by giving them a week to take the survey at their leisure.

Advantages of having an online survey system compared to the legacy paper survey system:

1. Less manual work and time spent on compilation of the data
2. Getting rapid results on data from all students
3. Reduced data compilation errors
4. Automated queries generated for comparative views to the administrator.
5. Reporting dynamically and up-to-date information as the information arrives.
6. Graphically presenting statistical information from real time data
7. Database that stores all information about the student's feedback creating a "one stop shop" for all data reporting and statistical analysis
8. Eliminating the use of paper for student surveys, distribution and collection
9. A single system administrator can replace the work done by many graduate assistants and administrative help
10. Giving the students a week to take the survey at their own leisure

System Design Methodology

The development system consists of a Microsoft Access database, which is connected by open database connection (ODBC) to various active server pages (ASP) pages. Multiple types and versions of browsers were needed to test the layout and functionality of the system (Microsoft Internet Explorer, Netscape Navigator). From the development, test, and production layout specifications this project has very low overhead, as far as hardware is concerned. The programs reside on a PC based platform using Microsoft's personal web server. The operating system used was tested on both Microsoft Windows 2000 and Windows NT. An Editor such as Cold Fusion was used for the development of ASP and HTML. The production system will vary only slightly from the development system. In production the preferable database used is SQL Server 2000 [3] and the web server to be used will belong to PACE. The functionality in the production system will remain the same as in the development system to ensure a smooth transition. All resources will be available throughout the duration of the project, which was approximately six months.

The requirements for this project demanded that the student's identity not be considered. The survey submitted should be particular to course and should answer the questions in respect to a particular course [5]. The issues and problems brought up by the team after discussion with the client were most important in development of this type of a website. To avoid multiple surveys to be taken by a single student. This will not only provide wrong results, but the entire purpose of the survey will be defeated. This problem needed some kind of a tracking system to count the surveys submitted and also to prevent multiple surveys taken by a single person. Solutions like, using cookies or session variables were considered, but this would not solve the problem completely. If the intentions were to hamper the results of a course in one or the other way, changing computers for session variables not to work and deleting the cookies would make the survey vulnerable.

The aim was to develop a survey system, which will be used by everyone, with limited knowledge of the Internet [6]. The survey should be easy, not to ask the user to enter an abundance of information and making the process less time consuming were also the points considered.

To prevent multiple surveys been taken by a single student, we generate a random pin numbers (4-digit) for each student. This will be a set of pin numbers, which are unique to a particular course. When the pins are generated the students taking that course will be emailed with their individual pin number along with the Dean's message to complete and take the survey. The pin numbers will be generated by course and a list of all the courses in a particular semester will be displayed to the administrator. A button will be provided to generate these pins. Administrator also attaches the dean's message and sends the emails to give the students a sense of importance and priority to take the survey. The emails will be sent one at a time, to ensure no overloading as the survey takes place. The generated pin numbers are stored in a database along with the CRN and Course Name. When the student receives the email, he will go to the site and select the course for which he wants to take the survey. He will be prompted for the pin number. The student then

uses the same pin number that he has received in the email [7,9]. The system verifies the pin in the database for that course and provides access to the survey. If the pin does not exist or is marked as used in the table then that means that the pin is already used and the user is trying to take the survey again [7]. He/She will push the back button to the home page and will not be allowed to take the survey. If the pin exists in the table and the survey form is displayed then the student hits the submit button, and the pin number will be either deleted or marked as used.

To make the site easy, there is not much information to be entered by the user and is less time consuming. The site has maintained a common feature of Drag & Drop (Drop down menu) through out the site [8]. This makes the student comfortable once the student knows how to use it and it is also a quick process. The survey is configured so that when some information has to be displayed for user, it comes directly from the database. i.e.) On the survey form the user selects the course number and then the course name, instructor name, semester, year will be displayed directly from the database and server to the survey form. This reduces the amount of information to be typed in by the student and prevents potential typo errors that can be caused.

Web Interface

The system's user interface is broken down into two main parts: Students that take the surveys, and the administrator of the survey system.

The survey will easily allow the students to enter their pin number to be authenticated, select choices to the questions given by the administrator (Fig 1), add in text to give their personal opinions of the course, view their results to confirm the choices, and submit the survey to the system. Following the diagram on the following page (Diagram 1) a student who wishes to take a survey for a particular course will log into the home page but will not have access to the entire system as the administrator will. The student will not be able to view statistical data (Fig 2) or view graphical reports (Fig 3) from the information provided by other users due to the anonymity that each student will have. After the student uses the pin number, which was distributed electronically, the pin number will be used up and the system will know not to accept that same pin again. Simply stated, the student will only be able to submit one survey per pin number (Diagram 1).

The administrator of the system will have full control of the entire site (Diagram 1). The major responsibility of the administrator will be updating survey questions (Fig 1) to represent the best interests of Pace University. The main person in charge of making the changes to the system, which we call the "Administrator", is also going to add, delete, and modify most information (Fig 2), which will be viewed by the students. Viewing and analyzing reports (Fig 2 & Fig 3) to determine different trends in professors, courses, and/or departments will also be important for the results to return effectively [9,6]. Making minor changes to the reports can be modified in minutes and can also be handled by a person with limited computer experience. The administrator's job is not a time consuming role. With very little training and a minimal amount of time the administrator can easily operate this program.

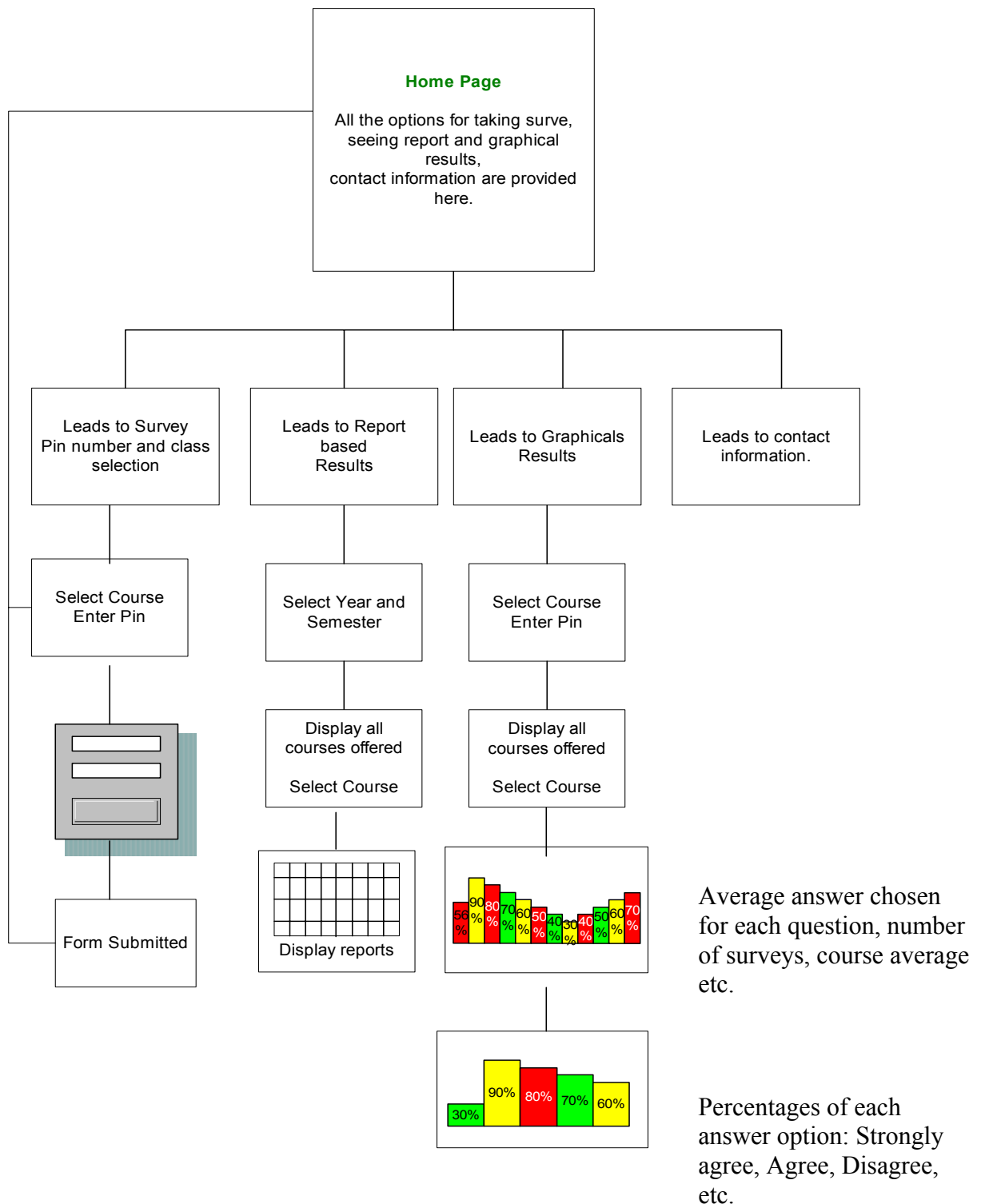


Diagram 1. Layout of the Web Interface
<http://utopia.csis.pace.edu/cs615/team1/new/home.html>

Some of the results generated during the development phase of the system:
Screen shots of the main pages:

Survey Form

Pace University
 SCHOOL OF COMPUTER SCIENCE AND INFORMATION SYSTEMS
COURSE OPINION SURVEY

<u>CourseNo</u>	<u>CRN</u>	<u>Instructor</u>	<u>Semester</u>	<u>Year</u>							
CS 507	23916	Fischer, D.	Spring	2002							
						Strongly Agree	Agree	Neither	Disagree	Strongly Disagree	Not Applicable
THE COURSE											
1	The objectives of this course were clear.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
2	The course has satisfied the objectives.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
3	I would recommend this course to other students.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
THE INSTRUCTOR											
4	The instructor was well prepared and organized				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
5	The instructor explained material clearly and thoroughly.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
6	The classes were interesting and informative.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
7	The instructor encouraged questions, comments, and discussion.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
8	The instructor seems knowledgeable in the subject area.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
9	The instructor made effective use of class time.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
10	The course requirements and grading system were made clear from the beginning.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
11	Assignments were educational.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
12	Exams were fair and reflected course content.				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	
13	Office hours were made known and the instructor was available at				<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	

Fig 1. Survey Questions

Survey Form with questions and answer options.

Report Display

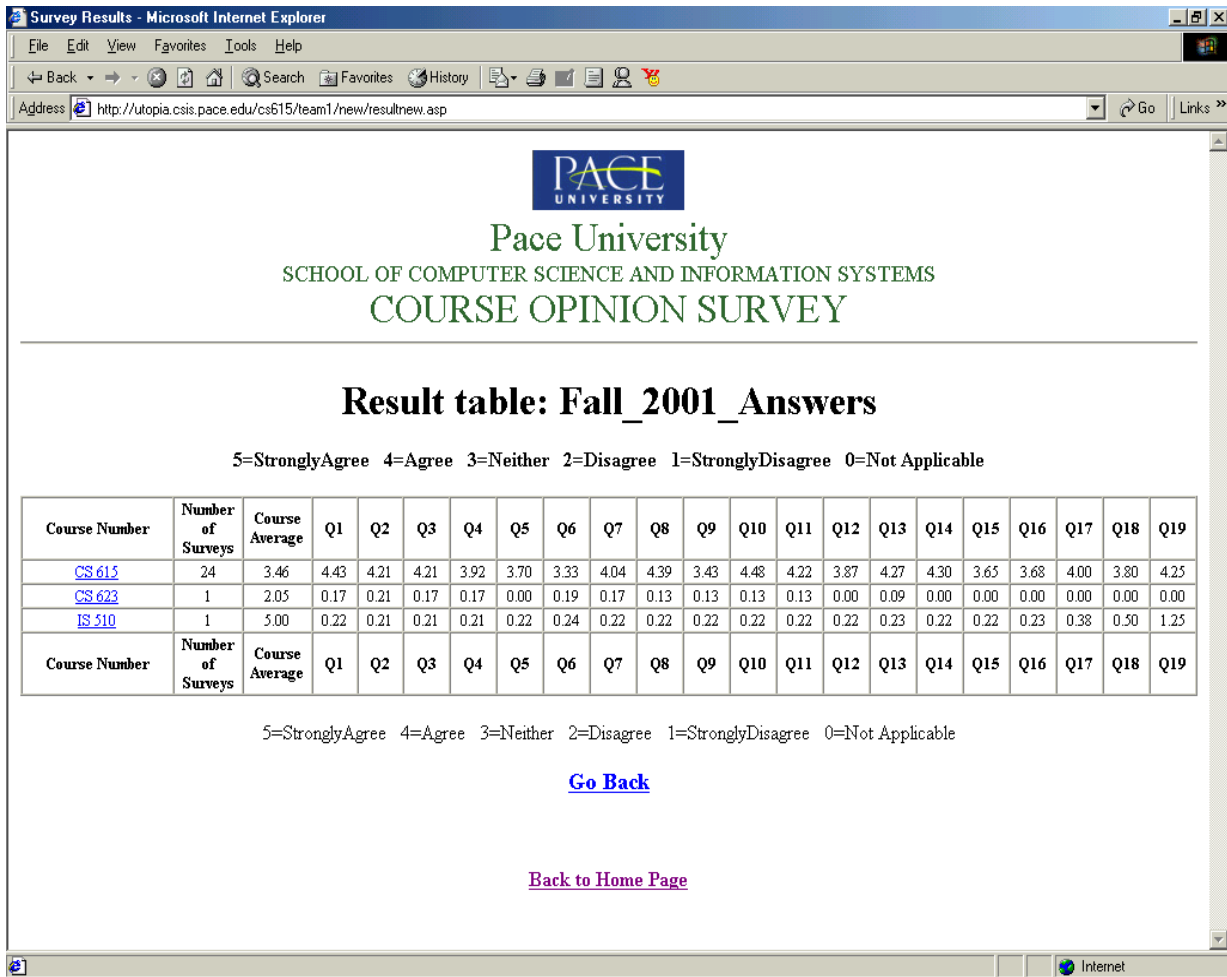


Fig 2. Report Generated

Results generated for Fall 2001. The list of courses, number of surveys taken, class averages and the average for each question in the survey for that course.

Bar Chart

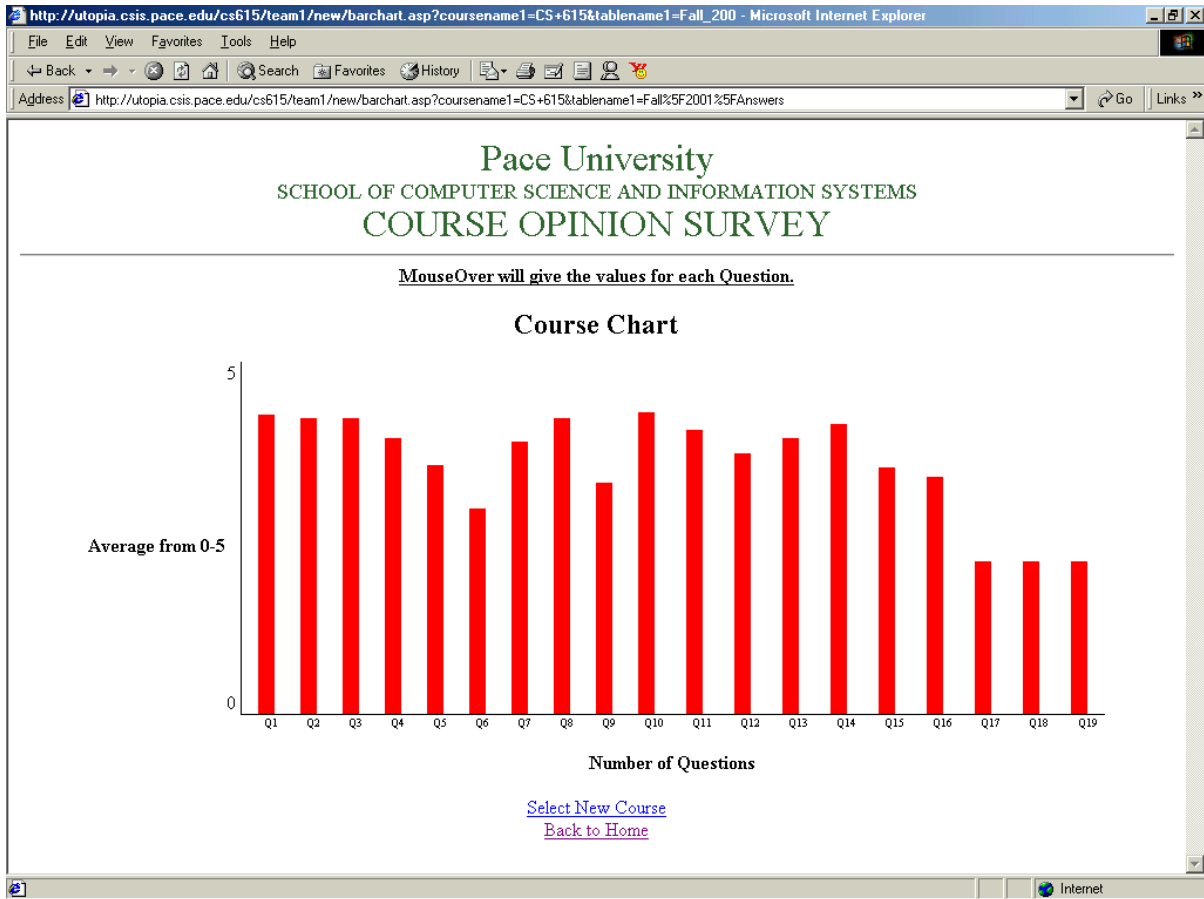


Fig 3. Graphical View

Graphical display represents averages of questions answered for each course. Sliding the mouse over each bar provides the values. Also each bar is link to the percentage of the answer options.

Conclusions

In this paper, we have discussed the main ideas of an online survey system at Pace University. We have looked at many different advantages as to why an online system would successfully replace the paper survey system currently used at Pace. Among the reasons an online system may be better is speed, efficiency, accuracy, low maintenance, and anonymity. The online system requires a low amount of resources, which are people and computers, to maintain the system and can be controlled by a single administrator [2,7,9]. The new system is extremely fast and accurate by using real time data that is entered straight from the users into a database instead of being entered through paper scantron method which has a higher degree of user error.

Pace University will be able to adapt to this program easily because it is very similar to the current system in regards to the way business is done with the current system. In fact, any business will be able to adapt this type of program in place of an existing “paper survey system” with minimal change to procedures and business processes. The online survey program will reduce the amount of “paper work” which is a very monotonous and is an administrative burden to the Pace Faculty. In addition, the ability to calculate numbers and statistics becomes extremely fast compared to the manual paper system, which is currently in practice.

The online survey system is not the standard for taking surveys but for the reasons mentioned above it will be considered invaluable and cost effective by any organization, university, or company as the successor to the older paper legacy system.

References

[1] <http://www.surveystacker.com/htm/services/educate.htm>

[2] <http://www.iresearch.com>

[3] <http://www.halogensoftware.com/index.php>

[4] <http://www.instantsurvey.com/partner?overture>

[5] <http://www.supersurvey.com/?sezgt>

[6] <http://www.perseus.com/softwareprod/pcmagazine.htm>

[7] <http://www.infosurv.com/?source=overture>

[8] <http://www.formsite.com/app/FormSite?FormId=LoadIndex&AdSource=102>

[9] <http://www.hostedsurvey.com/>