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Retention in Collegiate Aviation

by Jacqueline R. Luedtke and Ioannis Papazafiropoulos
Aviation Institute
University of Nebraska at Omaha
Omaha, NE 68182--0508

ABSTRACT

Retention issues are important to people in all aspects of business and academia. The relationship of how many people start a project and how many actually complete it is an important one, regardless whether the project is an academic degree or a business venture. Aviation, partially due to the cost associated with training, has unique retention problems. The Aviation Institute at the University of Nebraska at Omaha (UNOAI) undertook a research project to study retention issues as they relate to the Institute's academic program and the field of aviation in general. The survey and results should prove useful for other aviation programs in the United States as well as for international aviation programs.

INTRODUCTION

Retention, for the purpose of this research project, is defined as the percent of individuals that remain in a specific program until its completion (Ewell, 1984). From an organizational point of view, retention is a critical property. Businesses, universities, churches—all organizations—are interested in retaining individuals to their specific program. While identifying why individuals choose to cease their affiliation with an organization is interesting by itself, it is more interesting when paired with retention issues. Identifying why individuals choose to leave an organization aids in implementing plans to prevent similar circumstances from causing others to also leave the organization (Ewell, 1984).

Aviation presents an even more challenging environment than other fields where retention might be a significant issue. While it is true that aviation lures individuals with the ``mystery'' and ``excitement'' it offers, it also presents individuals with a challenging and complex environment that might be more difficult to cope with than realized. Additionally, if flying is the intended career path for the aviation enthusiast, the cost might be more prohibitive than initially thought. Many other issues come into play when one looks at aviation as a career.

An increasing number of employers today, including major airlines, require applicants to have university degrees. The Aviation Institute is a fairly new department at the university, offering a variety of options to prospective students. Flying and non--flying career paths are offered and, beyond baccalaureate level

degrees, options for Masters and Doctoral programs make the Institute a very attractive choice for students interested in aviation. In addition to academic and flying opportunities, the Aviation Institute offers internships, scholarships and fellowships and has an active chapter of Alpha Eta Rho, the international aviation fraternity. The Institute's flight team offers additional educational activities and incentives to students.

PURPOSE

In its short history, the Institute has been very successful; however, retention issues do exist. Of interest to the researchers was the retention of aviation students in general and the retention of students at the Aviation Institute (AI) at the University of Nebraska at Omaha (UNO) specifically. Specific retention issues at the Institute were examined and placed in a national perspective as they relate to similar issues at other aviation or general education colleges and universities.

The research project on retention at the Aviation Institute had several distinct phases. Each phase, while it might seem independent of the others, was interconnected with the basic issue: why some students who start an academic program at UNO and choose aviation as an option for their studies fail to complete the program. In some cases, the answer is simple and does not differ for the Institute or any other academic program-—the quality of work performed by the student is below standards and graduation is not possible. There is always a percentage of people who, regardless of the course of study, fail to complete it (Ogletree, 1992). These individuals, while interesting, were excluded from detailed analysis for the purposes of this research project.

Of greater interest are those who do not complete the program even though their academic performance is within the standards for graduation. Issues such as finances, medical reasons that might exclude them from a flying track, disapproval of the program or the staff, lack of understanding of the possible career paths available, and other reasons are of the greatest interest to the Aviation Institute.

This project had two primary goals. First, to identify the percentage of people who start but do not complete the program. Second, to identify the cause for their failure to complete the program. The first goal is a long--term one and will be addressed in a future paper. The second goal is primarily a satisfaction analysis and was the focus of this research project. It has been suggested that satisfaction is directly related to retention (Earwood 1989). The correlation between the two will be addressed in a future paper.

RESEARCH METHODOLOGY

The sole source of data for the retention project was the Aviation Institute's students. Three subgroups of students were identified: current students (those that were enrolled in the program while the project was conducted), former stu-

dents (those that have taken some classes from the Institute in the past but were not currently enrolled in aviation classes), and alumni (those that have graduated from the program).

Questionnaires were administered in class for current students and mailed to former students and alumni. The questionnaires were anonymous; however, a demographic section allowed a respondent to provide information about sex, race, age, etc. The in--class experimenter bias administration was controlled via a script that was read to all participants. Care was taken that an individual did not complete the questionnaire more than once. A series of questions were asked and the answers marked on a form utilizing a Likert scale ranging from one (very poor) to seven (excellent) The Questionnaire that was administered can be found in Appendix A.

A simple QuatroPro(R) spreadsheet was created that allowed fast and easy entry of the data sample. A brief one--page instruction sheet that explained how the entry of information should be completed was created and given to the individual that performed the data entry. Care was taken during input, but if a problem was found, a second entry provided the correct data set to be used in the final compilation of results. Simple statistics were performed ``live'' by the spreadsheet during data entry so that general trends were immediately identified. When all data were input, a more in--depth statistical analysis was performed utilizing the Statistical Package for the Social Sciences (SPSS).

An outline of the research process follows.

- During phase one of the project, the questionnaire was created and the overall design of the project established. A pilot study was conducted during this phase to identify possible problems with the analysis and execution of the project.

- During phase two the pilot program was examined and problems identified and corrected. Changes were made as needed to both the design of the project and the forms used in the project.

- Stage three was the data collection phase. Questionnaires were administered to all three groups. The questionnaires were identified for the semester during which they were administered. This paper includes data from the summer 1995 semester but data collection will be ongoing.

- The next phase was the data analysis. Data analysis was twofold: while entering the data in the spreadsheet, some immediate results were obtained. Additionally, advanced statistical analysis was performed using SPSS. This phase could be repeated several times as the project progresses if additional data is collected and analysis needed.

- The final stage was the composition of this paper reporting both the research process and the overall findings. The paper includes all data avail-

able to date of its publication. Some problems were encountered during this stage. A planned Internet survey of aviation colleges and universities where retention issues could be discussed in an open forum had disappointing results partially due to a failure of the communications software and partially due to the fact that many instructors were unavailable during the summer. While that survey is planned to be included in the future, it is not a part of this report since it did not offer a significant contribution to the issues studied.

The sample size of this research project (n = 102) was small, dealing with only one institution. Basically, this was a preliminary study to develop the most useful and efficient methodology of surveying the attitudes and satisfaction of the students of the Aviation Institute. However, one hundred percent of the aviation students taking classes during the summer 1995 were surveyed. This methodology lends itself to multi--university application.

STATISTICAL ANALYSIS

Due to the nature of the survey, a direct interpretation of retention was not possible. Instead, a retention percentage could be calculated through the records of the Aviation Institute and a correlation between the satisfaction scales and the retention data would provide the desired answer. To date, official data is not available, but strong evidence supports this conclusion. Even though the correlation might be significant, this study represents an indirect measure of satisfaction as it relates to retention and is not a bonafide ``proof'' of the concepts presented.

The most important analysis performed was the statistical evaluation of the data. A commercially available program, SPSS(R), was used to perform all statistical analysis of multi variant nature. The main interest in the analysis was the trends identified through the data. The primary relationships that were measured were satisfaction with various aspects of the program and correlation between a student's GPA and his or her expressed satisfaction with the program. The assumption was that high satisfaction with the program would correlate highly with completion of the program.

STATISTICAL FINDINGS

The Aviation Institute's student population increased during the first four years of operation. The high correlation of retention/satisfaction supports and, in fact, can be used to explain this increased enrollment. A steady increase in the number of students is noted for the first three years of the AI's existence (see Graph 1). For 1995, a strong enrollment was evident but no substantial growth was expected. Satisfaction with the Institute as indicated by the satisfaction survey and the individual course grade reports is highly correlated with retention as predicted.

GPA:	*No. of Students*
3.0 – 4.0	56
2.0 – 3.0	45
Below 2.0	1

TABLE 3
Pass/Fail Rates for Summer 1995 Retention/Satisfaction Survey

Simple statistical analysis was performed as the data were entered in the customized spreadsheet. During that initial analysis, it was calculated that the majority of the students were pleased with the UNOAI's current structure and performance. More than eighty percent of all respondents awarded a total rating of five or better (good to excellent). Some categories received lower ratings; however, overall the consensus was that the UNOAI is doing a very good job at its academic/training function.

Supplementary data relating to academic performance are reported in Table 2. An interesting correlation that was not calculated is retention as it relates to academic performance. Such a calculation, even though interesting, is not possible under the current design of the project. However, a separate statistic—satisfaction with the program as it correlates to GPA—was calculated. A high correlation was identified for that measure. The demographic data provided an indicator of the academic success of the program and also pointed out some retention issues, i.e. high GPA equals high satisfaction rate which correlates with retention (Earwood, 1989).

A correlation of 0.92 was found when GPA was compared with stated satisfaction with the Institute. A correlation of 0.80 or better is expected to be found between the satisfaction scale of the questionnaire and the overall retention records of UNOAI when records are received from UNO's Registrars Office.

Greater than ninety percent of the students that took an aviation class during summer 1995 passed the course (see Table 3). More than seventy percent of the students who passed an aviation course made a B or above in the class. When compared to Table 2 and the satisfaction data, a high retention--to--correlation ratio can be observed.

1000	10	0
1000/2	11	0
1030	0	0
1040	15	2
2900	3	0
3060	29	1
3400	0	1
4000	3	0

Because recruiting and retaining women and minorities is such a critical issue today in business as well as in academe (Luedtke, 1993), the researchers conducted demographic analysis which is shown in Table 4. The simple demographic analysis reveals very few minorities enroll in aviation courses at the university (9.09 percent). This trend was not compared with the national average, but it was not very surprising since minorities tend to be underrepresented in universities in general. The ratio of male to female was favorable to males. This is another expected finding since aviation has historically been a male--dominated field. The university is actively promoting the enrollment of minorities and women.

DISCUSSION REGARDING FINDINGS

No significant correlations were found among the questionnaire categories. The correlation between categories is not a meaningful statistic of what was be-

85	12	80	2	6
87.63%	12.37%	90.91%	2.27%	6.82%

ing measured but was calculated in order to refine the questionnaire. If two (or more) categories tended to covary, changes in the questionnaire in future administrations would be warranted. The current results suggest that no such change is needed. As expected, there was a high correlation between stated satisfaction with the program and GPA. It is not surprising that people who do well tend to award praise to their academic program. It was surmised that a high correlation between satisfaction and retention in the program would be found. The anticipated high correlation, which suggested satisfaction with various aspects of the program, is an important predictor of retention in the program.

CONCLUSIONS AND RECOMMENDATIONS

In today's competitive market, especially with the decline in collegiate student population in recent years, retention is a major concern to all departments, colleges, and universities. As is taught in marketing classes, it is less expensive to retain a customer than to acquire a new one (Tinto et al, 1994). Because there are only so many college--age students (even with the returning adult student), all universities must address this issue.

Some key components of other departments or universities regarding their retention efforts include: (1) community outreach involving activities that link the community and the university together; (2) individualized academic advising; (3) incorporate a Peer Leader program whereby a freshman is regularly contacted by an upperclassman with common interests to help guide him or her; (4) ensure as much financial assistance where possible via scholarships, internships, cooperative education, etc. (Patti et al, 1993).

Many colleges and universities are establishing a separate office to deal exclusively with the retention issue. This is an important step; however, every department, every faculty member, every staff member must also be involved with the process in order for a retention program to be effective. This is even more imperative for flight programs at universities and colleges since more variables come into play (Kluepfel, 1994).

The faculty at the Aviation Institute provide one--on--one advising to the students; however, the faculty are evaluating their procedures and will incorporate a class--by--class outline to assist students further with their scheduling of classes. The Aviation Institute does have a program of ``Student Ambassadors'' that assist with public relations functions within the community; these ambassadors could likewise be utilized in a ``Peer Leader'' program described above.

Like aviation programs at other universities and colleges, the Aviation Institute must continuously establish and oversee as many internships as possible with organizations within the industry for its students. These provide students with real--life experiences and some financial.

Student knowledge of the financial assistance available is especially vital to flight students. These students must be made aware of the financial considerations that are required to obtain pilot licenses and ratings.

Along with the faculty, the vendor that provides the flight training must be involved in the retention process to assist the student to the successful completion of his or her training. Likewise, while encouraging student participation in activities (more difficult but even more important on a commuter campus) and assisting with financial aid opportunities, the faculty must be actively involved with student advising and activities. The faculty must be mentors, advisors, role models, and friends (Kluepfel, 1994). The number one attribute of 944 respondents to a survey of students' satisfaction and needs was a caring attitude of faculty and staff (Noel, 1986). Students want to be involved in a program where the faculty and staff care what happens to them, how well they do, and that they succeed in their program.

Just as in a business, if customers do not receive the help and attention needed they will take their business elsewhere. Some businesses are left wondering what happened; they never realize why they are losing business. Although some colleges and universities still believe they can just open their doors and students will come, this is likewise a false scenario. Today, colleges and universities must operate like a business if they wish to stay in business (Lenning, 1980). They must constantly assess how well they are serving the student. One way of accomplishing this is to survey the students' satisfaction; this is one important area of retention.

While satisfaction is not a direct measure of retention, it has been demonstrated in the past that there is a high correlation between retention and satisfaction. More than 90 percent of the participants rated the Aviation Institute very good to excellent. This finding is very significant. While a high correlation is likely to exist, when the data from the Registrar's office is compiled, perfect correlation is not expected because issues such as flight costs may influence the overall relationship. Individuals in the flight track of the program are approximately 10 percent of the total questionnaire database. In the future, a tool that measures why some individuals in a flight track do not complete the program will be utilized. Care will be taken so that academic reasons (failing grades) will not be used but only financial considerations and performance skills and issues will be measured.

The essence of this research project is that retention is a complex issue in most environments; this is even more so when flight considerations are taken into account. It has been demonstrated that the UNOAI retention rate is similar

to that of other institutions of higher learning that provide flight training; however, it is imperative to routinely address the satisfaction and retention issues.

The student surveys utilized in this research provide a starting point for the faculty at UNOAI to address satisfaction and retention issues of its student body. By addressing these issues and continually updating and administering the survey each year to students, the Aviation Institute should be able to ascertain the satisfaction of its students regarding its programs. This survey could easily be adapted for other aviation programs. As stated previously, satisfaction and retention are critical issues for educators in today's competitive market and must be continuously addressed.

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APPENDIX A
CURRENT STUDENT SURVEY

Thank you for participating in our survey. Your participation is strictly voluntary and your assistance greatly appreciated. Your comments will assist the Aviation Institute in making the program better for you, our students.

NOTE: We appreciate your willingness to help us. If you have completed this survey in the past (another class/previous semester) please indicate so by marking here: ____

1. Please indicate below the reason(s) you are enrolled in this course. It is because:
   ___ I am an Aviation minor.
   ___ I am an Aviation major.
   ___ Other. Please be specific:

2. Were the aviation classes in which you were last enrolled satisfactory?
   ___ yes ___ no

   I. If yes, please list the best features of those classes:

   II. If no, please indicate which class and what was the reason(s) for your dissatisfaction:

3. What other classes are you considering taking at the Aviation Institute?

4. Would you be interested in participating in other aviation--related activities?
   __yes ___no

   List some of the activities you might be interested in:

5. Your suggestions concerning the Aviation Institute are greatly appreciated and will be used to make improvements in our curriculum and services.

   Please indicate any suggestions that you might have:

6. For demographic purposes we request that you provide the following information:
   Current Semester: _____ Flying Student? _____
   Sex: ___ Male ___ Female
   Ethnic Group: ___ Black ___ White ___ Other
   Overall GPA: ___ 3.0 – 4.0 ___ 2.0 – 3.0 ___ Below 2.0

Your name is NOT required. However, if you wish to provide it, please do so below. We assure you that you name will be kept confidential and will have no effect in your standing in this class or the Aviation Institute. If you do provide us with your name, could we communicate with you if we have any questions?
___ Yes ___ No.

Name:_____
Phone Number: (____)_____--____
Address:_____

City:_____ State: _____ Zip: _____

Please rate the following categories using a scale from 1 (very poor) to 7 (excellent). Simply circle the best answer.

Overall

Course Content:
Aviation Institute–Advising:
College of Continuing Studies Advising:
Aviation Institute Overall:
Faculty/Staff:
Aviation Institute Individual Faculty/Staff:
Availability of Scholarships and Internships:
Bulletin Board Messages:
Aviation Institute Newsletter:
Aviation Institute Office Staff:

Course Materials

Books, handouts, etc.:
Aviation Institute Field Trips:
Aviation Institute Exams, Homework, etc.:
Aviation Institute Instructor policies, grades, etc.:

Student Organizations

Alpha Eta Rho:
Flying Mavericks:
Student Facilities:

Flight Program

(For flying students, or those that plan to enroll in flying classes and have visited Sky Harbor)

Flight Operations Facility:
Flight Equipment, planes, simulator, etc.:
Flight Operations Personnel:
Other:_____

APPENDIX B
INSTRUCTIONS FOR THE ADMINISTRATION OF THE CURRENT STUDENT SURVEY AS PART OF RETENTION RESEARCH

Thank you for participating in our research. The administration of our survey is rather simple. Read the following paragraphs to your class verbatim. It is important that there is no deviation from the text:

In just a few moments I will be passing around a short survey. Please take a few minutes to complete it. Your participation is strictly on a volunteer basis. If you choose not to participate, your grades in this or any other class or your standing at the Aviation Institute will not be affected.

There are no correct answers to the questions. This is an opinion survey; simply give us your honest opinion.

During the administration of the questionnaire, I will be outside the room; please place the questionnaires in the provided envelope, the student volunteer will seal the envelope and return it to room 422. The results of the survey will not be available to me until the term is over and the grades have been turned in to the registrars' office.

Once you have completed the survey please return to your seat, and continue to remain silent so that others may complete the survey as well. Thank you for your participation.

We anticipate that the average student will complete the survey in about 5 minutes. At the most, 10 minutes would be ample time to complete the survey. Feel free to contact either Dr. Luedtke or Mr. Papazafiropoulos if you have any questions concerning this project.

NOTE: Please indicate the number of students present in your classroom:

Thank you for your cooperation.