

## **Distance Learning in Collegiate Aviation: Meeting the Needs of Airport Professionals**

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### **ABSTRACT**

Distance learning, referring to those courses which can be completed via the computer and internet and entirely absent from the traditional classroom, is increasing in popularity among both students and academic programs. Although (as of Spring 2006 course offerings) 24 institutions currently offer on-line aviation academic courses, this equates to only 21 percent of the institutions in the most recent Collegiate Aviation Guide (Prather, in press). As the demand for distance learning continues to grow, especially among non-traditional students, it is useful to consider the demand among airport professionals for aviation distance learning courses and degrees. A mixed mode survey with multiple contacts was distributed to a randomly selected sample of 200 members of the American Association of Airport Executives during Fall 2005 and Spring 2006. A response rate of 52 percent revealed that many airport professionals view distance learning as affordable, convenient, flexible, of reasonable quality, and impersonal. Additionally, many are interested in pursuing distance learning but are unaware that complete aviation degrees can be completed on-line, and feel that more universities should offer aviation degree programs via distance learning. *As we move to meet the educational needs of working adults in a mobile society, our conception of the university must extend beyond place and embrace process. An adult university cannot be campus-bound, rather its borders must be defined by the lives of its students.* (Sperling, as cited in Lehrer and Connolly, 1994, p. 13)

### **INTRODUCTION**

In the past, studies completed outside the traditional classroom environment were referred to as correspondence courses, extension courses, extended studies, external studies, home study, and continuing education (“Historical timeline,” n.d.). More recently, with the assistance of integrative learning technologies, this realm of education is being referred to as e-learning, distance education, online learning, web-based instruction, and distance learning (Carr-Chellman & Duchastel, 2000; Jung, 2001; Romi, 2000). It includes instruction in both synchronous and asynchronous learning environments, and utilizes any number of technologies, such as audio or computer conferencing, computer-mediated instruction, internet-based instruction, videocassettes or disks, or television. As Garrison (in Jeffries, n.d.) states, “distance education is ‘inexorably linked to the technology.’” It is this technology, which has made distance learning so popular, that will continue to greatly expand and improve in capability and adaptability (Council for Higher Education Accreditation [CHEA], 2002). Why does a student choose to study via

asynchronous, on-line learning, rather than the traditional campus-based synchronous learning? Generally, those most inclined to participate in distance learning are non-traditional students. Those working full time with personal and professional commitments, and with little flexibility to attend on-campus classes, see great benefits to distance learning. Indeed, advantages to distance learning include, (a) everyone being on an equal footing, regardless of demographic characteristics; (b) having more time to consider a response to questions posed; (c) having individualized communication, via email, with faculty; (d) remaining eligible for financial aid; (e) continuing to work full-time while pursuing a degree; and (f) the ability to pursue an education without commuting to school or arranging child care.

To be fair, the following disadvantages are recognized as well: (a) technical issues that can cause frustration, (b) fully online courses may have slightly lower success rates and higher withdrawal rates, and (c) students must be self-motivated and ready to make a commitment (“Online learning,” n.d.). Disadvantages may also include inefficiency in the mode of delivery, the difficulty in establishing a learning

community, loss of personal contact among students, cheating, and obstacles with assessment (Moody, 2004).

Although today's technology plays a large part in making distance education so popular, it is not without drawbacks. Some institutions point to difficulties in establishing the necessary technical support and training. Others become frustrated with the speed of technological innovation, arguing that it is difficult to invest considerable resources into a program that could soon become based on "old" technology. Additionally, not all curricula are found to be suitable for distance learning (Scarpellini & Bowen, 2001). Regardless, institutions are finding solutions to these problems and creating on-line offerings at a record pace.

## METHODOLOGY

### Purpose

The purpose of this research effort was to gauge not only the interest in, but also the demand for, collegiate aviation distance learning programs among airport professionals. By focusing on this sector of the aviation industry, potential and current non-traditional collegiate aviation students were able to express their opinions about the role of distance learning in their continuing education needs. This study was considered important for those institutions currently offering aviation distance learning options, as well as those aviation programs considering offering such courses. Specifically, what demand, if any, exists among airport professionals for aviation courses either currently or potentially being offered via distance learning by various institutions?

### Participants

As the target population for this study was airport professionals, the *2005 American Association of Airport Executives Membership Directory and Yellow Pages of Corporate Members* was utilized to select a random sample of 200 potential participants (American Association of Airport Executives [AAAE], 2005). Utilizing the 2005 AAAE Membership Directory, the names of all 3,739 non-student members included in the directory were consecutively numbered by hand. A random numbers table was then utilized to arrive at 200

randomly selected numbers to allow the study sample to be selected. Only those AAAE members currently employed at an airport, in any capacity, were selected for this study. If the name of a retiree or college professor was selected, for example, this name was not included in the sample and an additional random number was selected to arrive at a complete sample of 200.

### Survey Instrument

As this research effort was designed to solicit opinions regarding distance learning, a decision was made to utilize an on-line survey tool to conduct the survey. SurveyMonkey.com is one of several websites specifically designed to host surveys, collect responses, and compile the results. An original, researcher-created questionnaire, entitled Aviation Distance Learning Survey, was created on Survey Monkey for this research effort. Following the advice of Dillman (2000), typically objectionable questions (such as age, gender, and years of experience) were placed near the end of the survey, while the questionnaire began with an easy to answer question asking respondents to check those adjectives that described their perception of academic courses offered via distance learning. This questionnaire was first pre-tested on five individuals currently working in the airport industry, as well as five individuals working in other fields. Comments received allowed for refinement of the questionnaire and an accurate understanding of the time necessary to complete the questionnaire.

### Procedure

This study, which was conducted from November 2005 to January 2006, began with an email invitation to the 200 individuals on November 29, 2005. Included in the email was an electronic link to the on-line survey. The email introduced the survey and the importance of the research effort. It likewise proposed that less than five minutes were usually necessary to complete the survey, and explained both the voluntary participation and confidentiality of responses ensured by the researcher. Additionally, per Survey Monkey policy, a link was included to allow individuals the opportunity to decline participation in the survey

and discourage future follow-up by the researcher.

A total of 39 emails were returned as undeliverable, thus requiring the selection of 39 additional names with the use of the random numbers table. Emails to these 39 respondents were sent on November 30 and December 1, 2005. The initial email invitation garnered a 26 percent response rate, with 51 responses being received. Based on Dillman's (2000, p. 149) advice that "multiple contacts have been shown to be more effective than any other technique for increasing response to surveys," a reminder email was sent on December 12, 2005, to all non-respondents. By January 1, 2006, 69 responses had been received, for a 34.5 percent response rate. Due to the lower than desired response rate and the realization that some respondents may not have internet access or be familiar or comfortable with responding to an on-line survey, it was decided to implement a mixed mode design. Although most people have previous experience with the typical paper and pencil questionnaire, the same cannot be said for people asked to respond to electronic surveys (Dillman, 2000). Indeed, Dillman (2000, p. 240) explains that "evidence exists that people prefer certain modes, and if such preferences are significant it stands to reason that people who have not responded to one mode because they dislike it may be receptive to a change in approach." Additionally, he explains that by switching modes, the importance of the study is emphasized to non-respondents.

The implementation of the mixed mode design required converting the on-line survey to a paper format. A replacement questionnaire was sent via fax and introduced by a personal memorandum on January 7, 8, and 9, 2006, to 125 non-respondents. Six had declined participation in the survey via the aforementioned link and thus were not subjected to any follow-up. This mixed mode effort, designed to increase the survey response rate, was successful in achieving that goal. Twenty-two additional surveys were received either via mail or fax, while an additional 13 individuals chose to complete the on-line version. The final response rate for this mixed mode design with multiple contacts was 52 percent, with a total of

104 surveys being returned and considered usable.

### **Limitations**

Although other techniques may have been adopted during survey implementation to further increase the 50 percent response rate, limited resources prevented the implementation of a telephone follow-up, financial incentive, or certified mail follow-up, for example. Additionally, it is recognized that those 39 individuals with invalid email addresses initially selected for the study were excluded from the study as a result. Although the possibility exists for invalid fax numbers or postal addresses in these survey modes, it appears the likelihood is less. The exclusion of these 39 individuals from the study could have been prevented by sending paper questionnaires via postal mail to those with invalid email addresses. Based on the experience of conducting this survey project, if the researcher wishes to include all participants initially selected in the sample, a mixed mode survey should be adopted to account for those with invalid email addresses, as well as those without internet access or those hesitant to complete an on-line questionnaire.

## **RESULTS**

### **Demographics**

The age of survey respondents was fairly evenly distributed among the age group choices provided in the questionnaire. The category claimed by the most respondents was ages 46-55, at 30 percent of respondents. The majority of respondents (85 percent) are male, and hold, at a minimum, a bachelor's degree (86 percent). The majority of these four-year degrees are in aviation, with fields such as civil engineering, education, and accounting also listed. For the 34 individuals with a bachelor's degree and volunteering the name of their alma mater, Embry-Riddle Aeronautical University was listed most frequently (by 11 respondents), while Southern Illinois University and Purdue University were mentioned by 4 and 3 respondents, respectively. Additionally, almost half (48 percent) of respondents possess a master's degree. Forty-one percent of these degrees are in business, with fields such as

aviation and public administration also listed. Two individuals also possess a doctoral degree.

When each respondent was asked about the extent of their experience in the aviation industry, 60 percent stated they have more than 15 years. When questioned about specific experience in airports, only 38 percent stated they have more than 15 years. Most respondents were in management, with 21 percent holding executive management positions, 35 percent holding director or senior director positions, and 29 percent holding mid- or low-level management positions. Also of significance is the number of respondents who are Accredited Airport Executives (A.A.E.) through AAAE. Only 14 percent indicated they were an A.A.E. This is almost identical to the number of active Accredited Airport Executives as noted in a survey of 200 airport managers by Prather (1998). Lastly, 63 percent of respondents have never completed a distance learning course. However, 30 percent have completed between one and five distance learning courses, with six respondents having completed more than five.

**Descriptive Words**

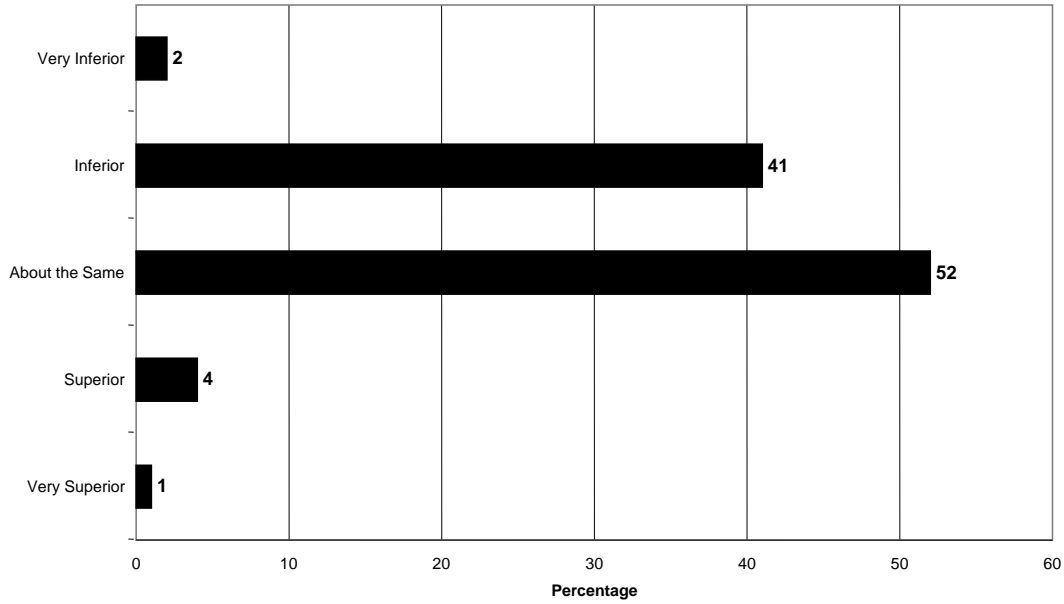
The first item on the questionnaire simply asked respondents to check all adjectives that described their perception of academic courses offered entirely via distance learning. This item was chosen based on Dillman’s (2000) advice that the first item should apply to all respondents, be easy to complete, and be interesting. Those adjectives selected by more than 50 percent of respondents include affordable, convenient, and flexible. Those adjectives selected by less than 10 percent of respondents include difficult, high quality (in contrast to choices of reasonable quality and poor quality), and inconvenient (see Table 1).

| <b>Words</b>       | <b>Agree</b> | <b>Disagree</b> |
|--------------------|--------------|-----------------|
| Affordable         | 52           | 48              |
| Boring             | 10           | 90              |
| Challenging        | 20           | 80              |
| Convenient         | 80           | 20              |
| Difficult          | 9            | 91              |
| Dynamic            | 9            | 91              |
| Expensive          | 15           | 85              |
| Flexible           | 70           | 30              |
| High quality       | 7            | 93              |
| Reasonable quality | 48           | 52              |
| Poor quality       | 9            | 91              |
| Impersonal         | 47           | 53              |
| Inconvenient       | 3            | 97              |

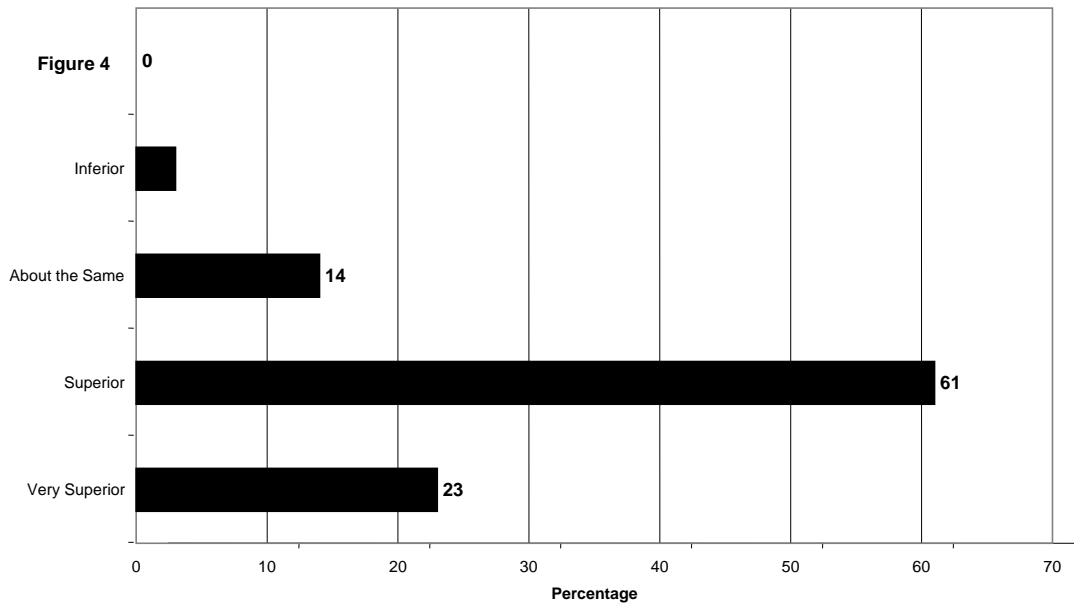
Note 1: Numbers represent percentages (N=104 for all cases).  
 Note 2: Shaded category represents the one adjective to which the most respondents agreed.  
 Note 3: Words are listed in alphabetical order as they appeared on the questionnaire.

**Perceptions on Distance Learning**

The questionnaire next sought respondents’ opinions regarding the quality and convenience of courses offered via distance learning. Specifically compared to traditional, on-campus courses, fully 52 percent of respondents felt the quality of distance learning courses was about the same. A combined 43 percent of respondents expressed concern, however, about the inferior quality of distance learning. As could be expected, 84 percent of responding airport professionals agreed that the convenience of distance learning is superior to that of traditional, on-campus courses (see Figures 1 and 2).



*Figure 1.* Compared to traditional, on-campus academic courses, the quality of distance learning courses is...



*Figure 2.* Compared to traditional, on-campus academic courses, the convenience of distance learning courses is...

The questionnaire also contained 13 statements utilizing Likert-type scales, which were designed to seek opinions regarding certain aspects of distance learning. First, respondents were asked to indicate their agreement with the

following statement: “I believe in the importance of continuing education.” Almost 100 percent of respondents agreed with this statement (see Figure 3).

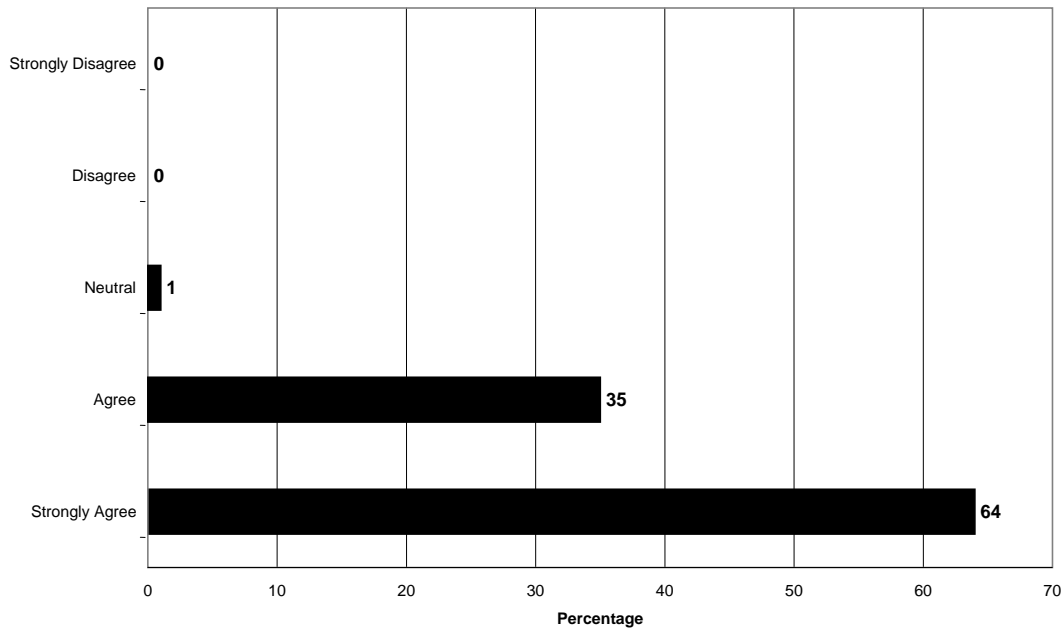


Figure 3. I believe in the importance of continuing education.

In an attempt to better gauge the demand for higher education among airport professionals, the next question inquired about the desire to obtain either a first or additional academic degree in aviation. Fully 43 percent of respondents agreed they would indeed like to pursue such a degree (see Figure 4). However,

respondents also indicated that various hurdles, such as expense (20 percent), no programs available (12 percent), professional commitments (39 percent), and personal commitments (38 percent), interfere with this pursuit.

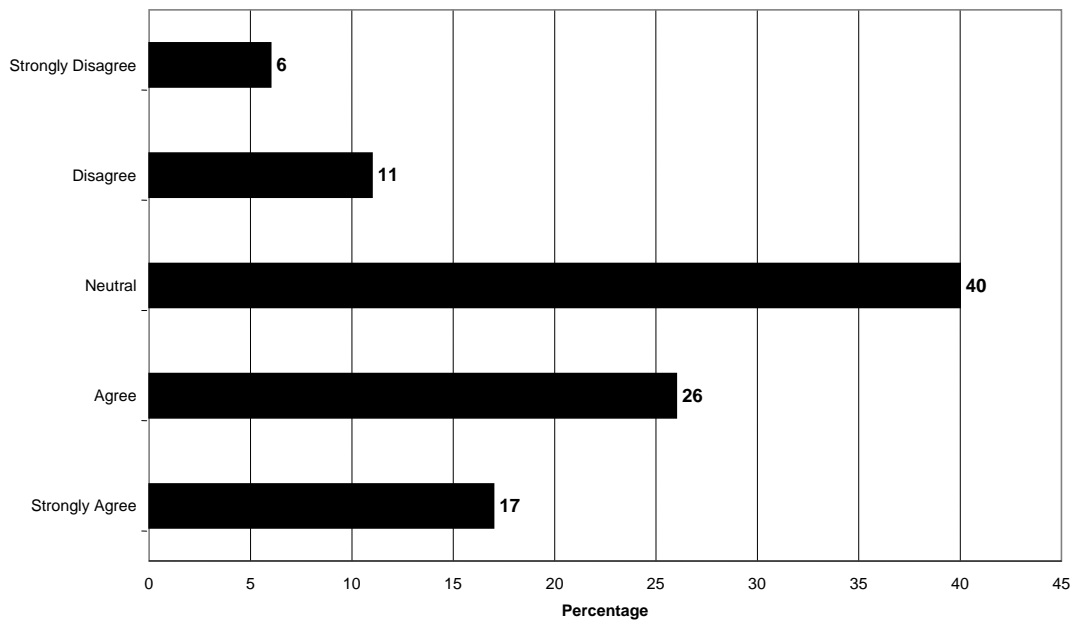


Figure 4. I would like to obtain either a first or additional academic degree in aviation.

An objective of the survey was also to understand the extent to which airport professionals are aware of current aviation distance learning offerings. For instance, would more airport professionals enroll in aviation distance learning courses if they simply knew

they existed? Over half of respondents (56 percent) are aware of the availability of aviation academic programs that can be completed entirely on-line. However, 26 percent are neutral in their degree of awareness while 18 percent are unaware (see Figure 5).

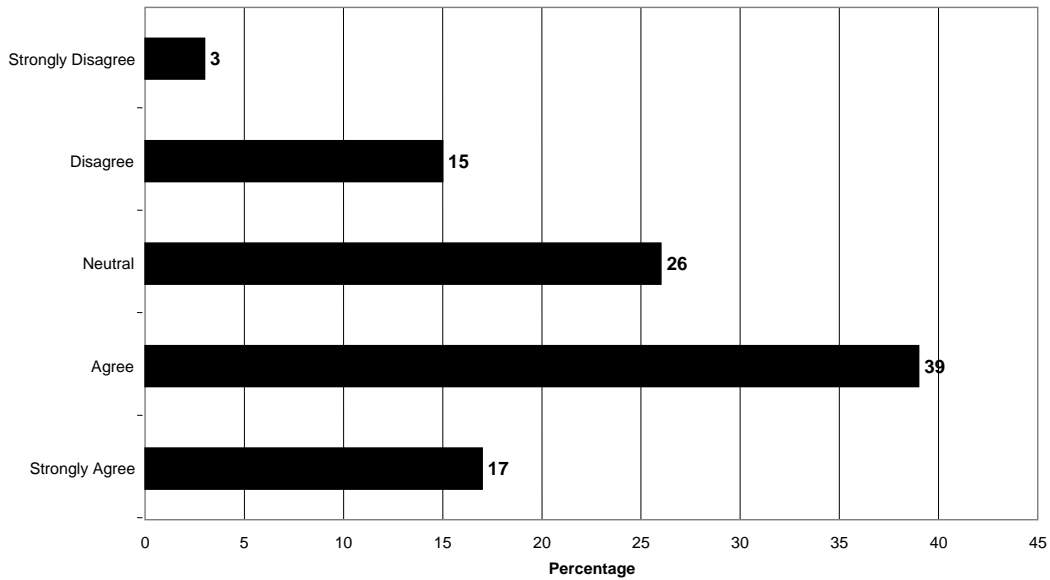


Figure 5. I am aware that some universities offer academic programs in aviation that can be completed entirely on-line.

As a follow-up to the previous question, over half of respondents (52 percent) would consider pursuing either a first or additional degree in aviation if they were able to do so at their own pace and via the Internet. Although

22 percent indicated they would not consider pursuing a degree under these terms, 27 percent were neutral, indicating they may consider pursuing an on-line aviation degree if the conditions were right (see Figure 6).

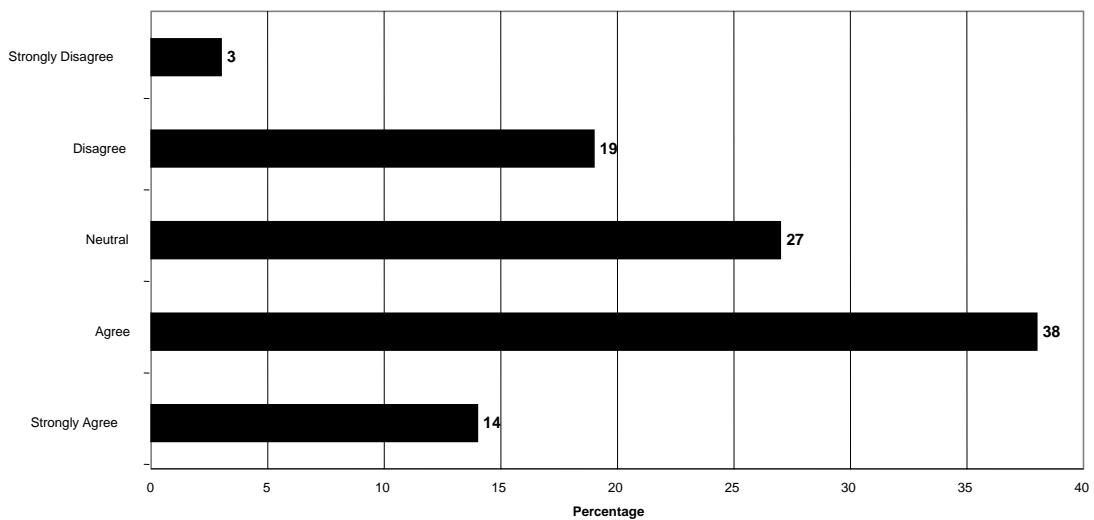


Figure 6. I would consider pursuing either a first or additional degree in aviation if I could do so at my own pace and via the Internet

Should more universities offer aviation degrees via distance learning? In essence, is the existing supply sufficient for demand? According to 57 percent of airport professionals, more universities should offer aviation degree

programs via distance learning. While 11 percent disagreed with this statement, a respectable 32 percent indicated neither agreement nor disagreement (see Figure 7).

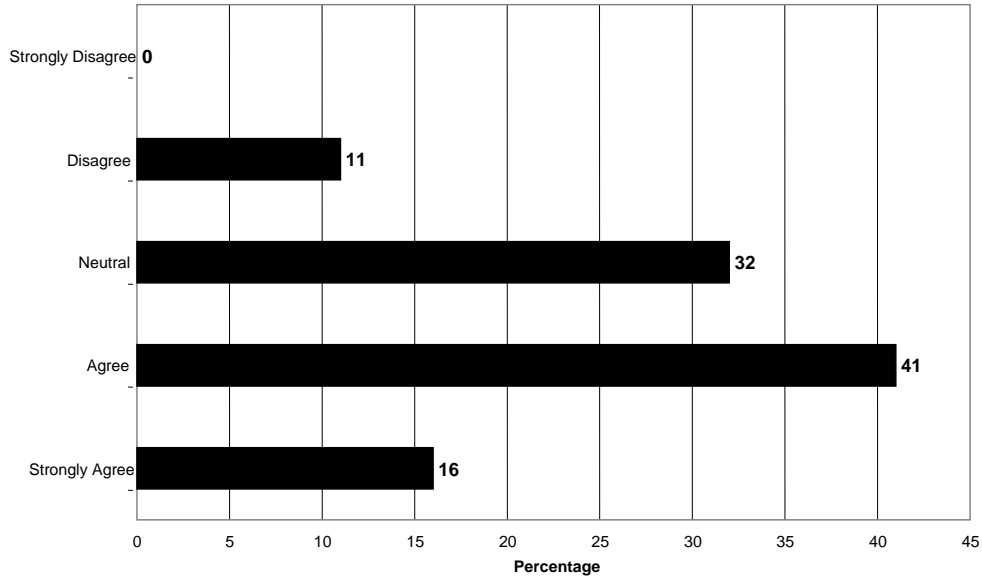


Figure 7. More universities should offer aviation degree programs via distance learning.

When considering that the majority of students engaged in distance learning programs are non-traditional students, the next questionnaire item stated, “More universities should tailor their graduate-level aviation

programs to working professionals.” Ninety-one percent of respondents indicated agreement with this statement. In fact, only one respondent disagreed with this statement (see Figure 8).

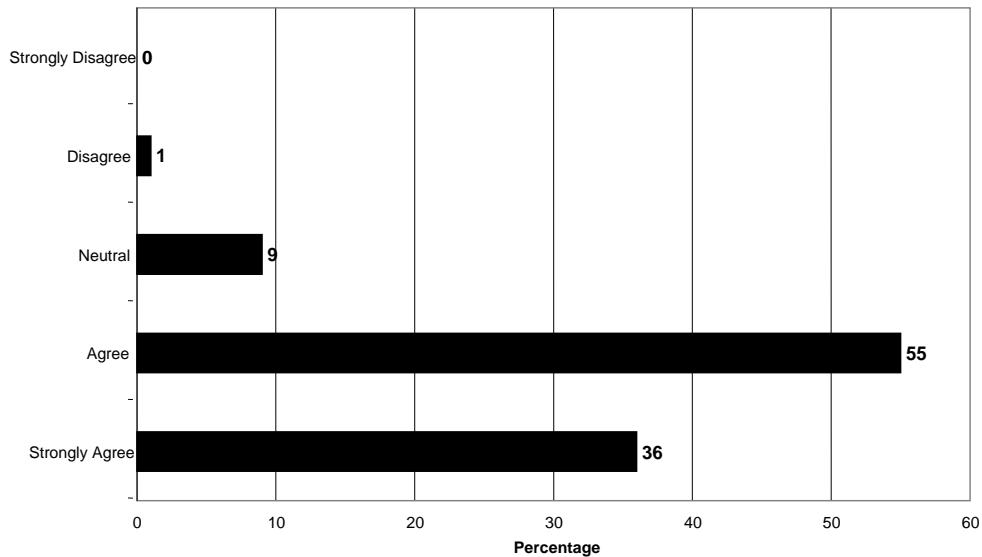


Figure 8. More universities should tailor their graduate-level aviation programs to working professionals.



In again considering the convenience of both traditional and on-line learning, respondents were asked to indicate their difficulty in attending on-campus classes and ease in completing on-line courses, based on current professional and personal commitments. Eighty-nine percent of airport professionals

responding to the survey indicated it would indeed be difficult for them to attend on-campus classes. In contrast, 58 percent agreed it would be relatively easy for them to complete on-line courses, considering their professional and personal commitments (see Figures 9 and 10).

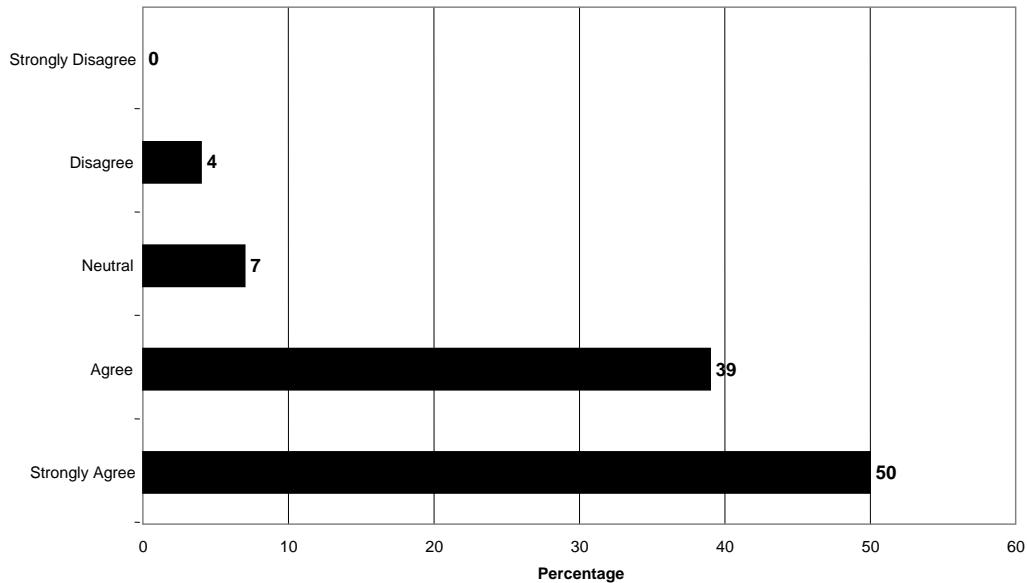


Figure 9. It would be difficult for me to attend on-campus classes considering my professional and personal commitments

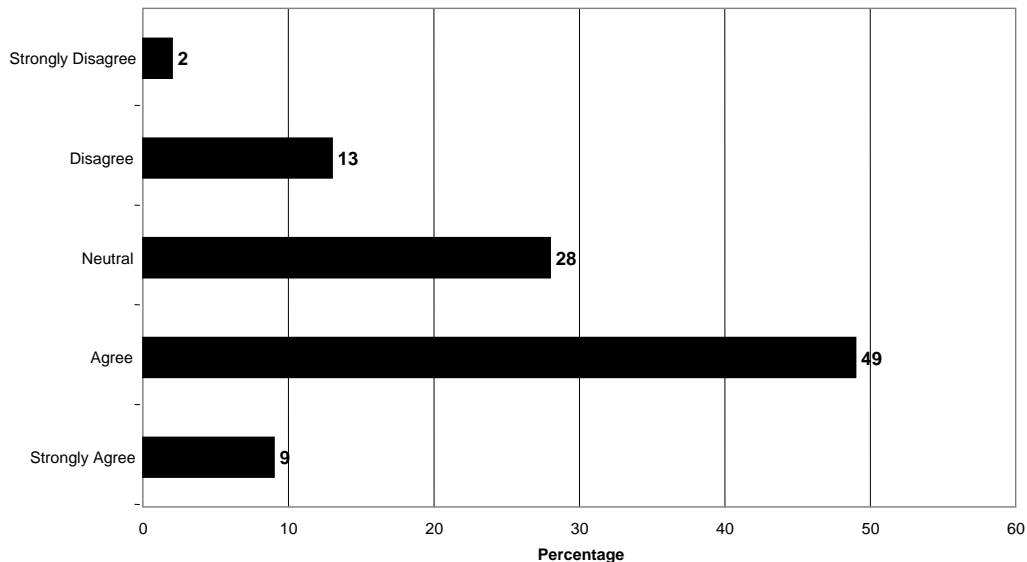


Figure 10. It would be relatively easy for me to complete on-line courses considering my professional and personal commitments

Is there great demand among airport professionals for distance learning aviation programs? Thirty-four percent of respondents feel there is. Although 56 percent neither agreed nor disagreed with this issue, only 11 percent disagreed (see Figure 11). Additionally, when asked their opinion of the percentage of airport professionals who would enroll in an aviation

distance learning program if they could financially afford to do so, half of respondents (50 percent) felt that between 5 percent and 20 percent of airport professionals nationwide would do so. More specifically, 25 percent felt that 11 percent to 20 percent would enroll in aviation distance learning programs if they could financially afford to do so.

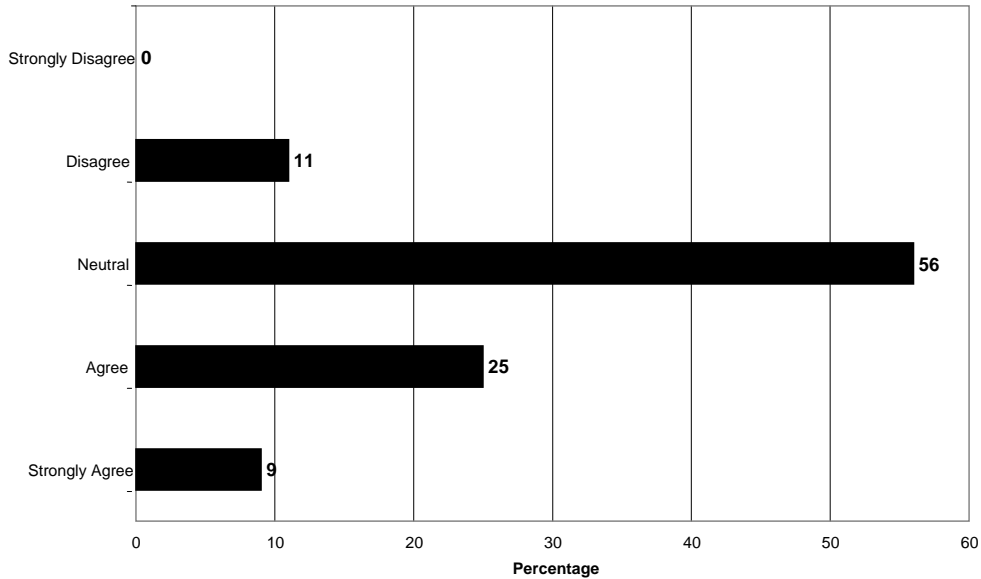


Figure 11. There is great demand among airport professionals for distance learning aviation programs.

One criticism of distance learning courses has been the lack of academic quality in the on-line environment. To determine if this was a concern among airport professionals, respondents were asked to indicate agreement with the following statement: “I am concerned

about the quality of distance learning programs.” Fifty-eight percent of respondents agreed with this statement. While 15 percent indicated they were not concerned about quality in the on-line learning environment, 26 percent were neutral on this issue (see Figure 12).

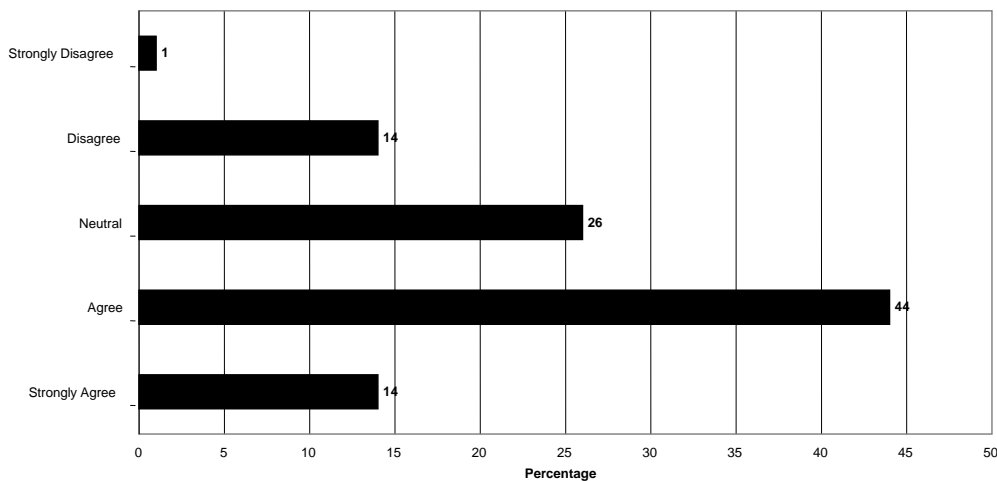


Figure 12. I am concerned about the quality of distance learning programs.

Many supporters of distance learning and the innovative technologies that make this novel form of pedagogy possible, feel distance learning is the direction education is moving.

Do airport professionals agree distance learning is the wave of the future? Over half (56 percent) do indeed (see Figure 13).

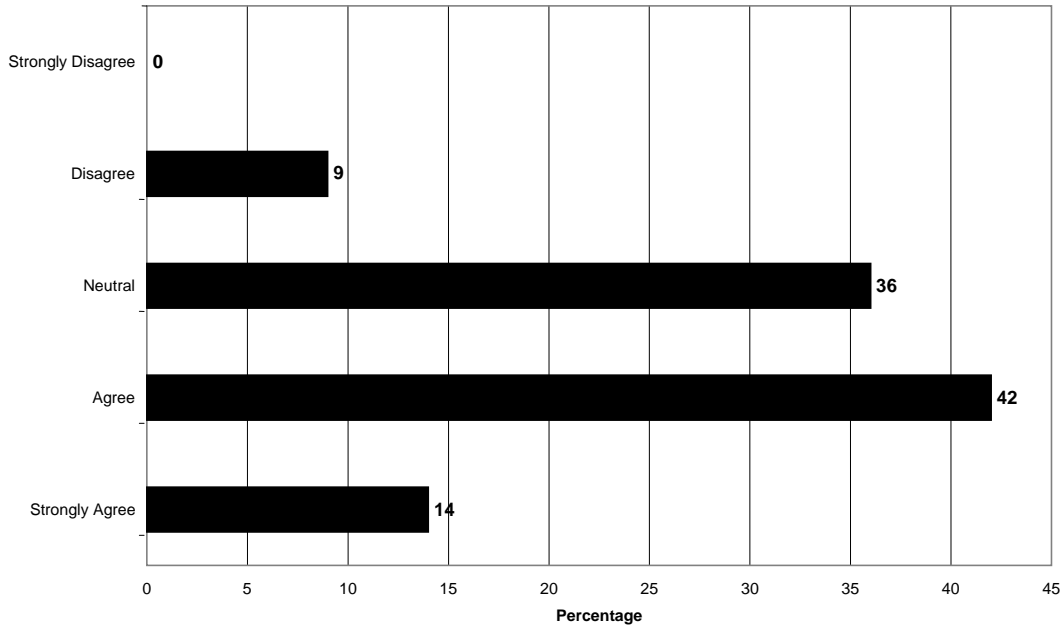


Figure 13. Distance learning is the wave of the future.

In considering the suitability of distance learning programs for non-traditional students with full time jobs, fully 79 percent of airport professionals feel distance learning programs are indeed more suitable for non-traditional

students, as compared to traditional college-age students desiring to attend school full time. Only six percent disagreed with this view (see Figure 14).

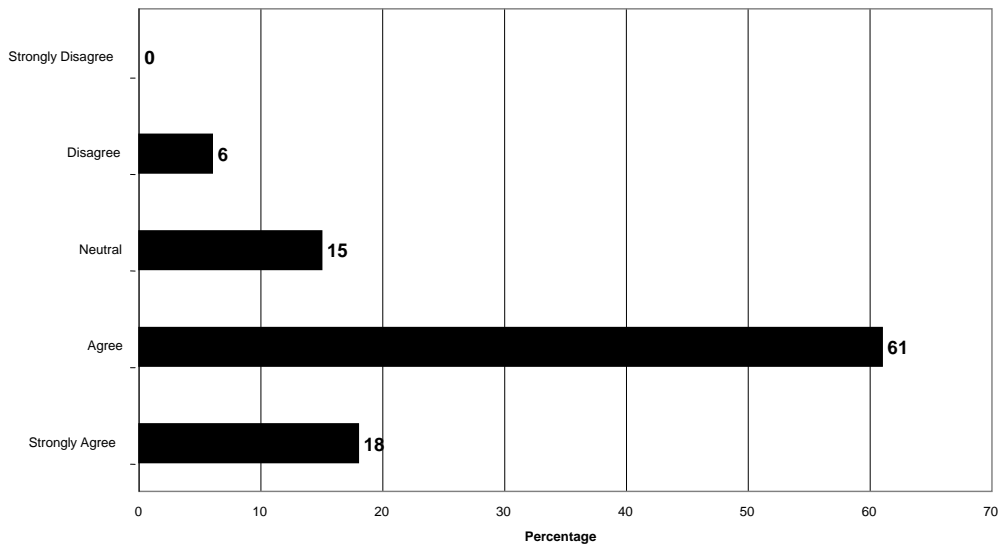


Figure 14. Distance learning programs are better suited for non-traditional students with full-time jobs, rather than traditional college-age students desiring to attend school full-time.

Lastly, respondents were presented with the following statement: “Traditional, on campus degree programs are more rigorous than distance learning programs.” Although 38 percent of

respondents agreed with this statement, 47 percent neither agreed nor disagreed (see Figure 15).

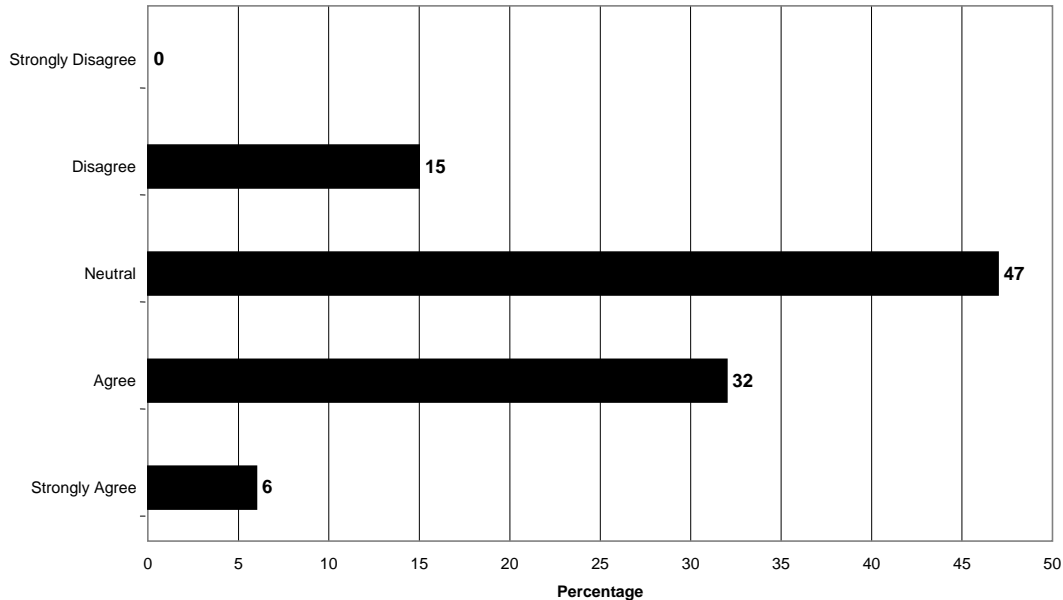


Figure 15. Traditional, on-campus degree programs are more rigorous than distance learning degree programs.

## DISCUSSION

The Aviation Distance Learning Survey designed for this research project has resulted in many areas of solid data from which discussions can begin. Whether considering the quality or convenience of distance learning, the importance and awareness of distance learning, or the demand for distance learning, the airport professionals surveyed for this project were, in a sense, speaking directly to the administration and faculty of traditional collegiate aviation programs. In interpreting the thoughts and opinions expressed via the survey, important recommendations can be formulated, which should assist collegiate aviation programs in meeting the needs of airport professionals, both today and in the future.

First, we must consider the existing perceptions of quality, or lack thereof, in distance learning. Fifty-two percent of respondents feel the quality of distance learning programs is about the same as traditional, on-campus programs. Although this is admirable, we must recall that 43 percent of respondents

feel the quality is inferior. Additionally, 58 percent expressed concern about the quality of distance learning programs. This should raise concern among those aviation programs currently offering distance learning courses and those considering distance learning. Although many programs utilize the same instructors, texts, and assignments in the on-line environment as the classroom setting, Metz and Bowen (in press, para. 10) explain, “too often instructors have merely transferred their standard material to electronic media without modifying to meet the needs of [a] new environment.” Even so, various studies (“Frequently asked,” 2005; Lehrer & Connolly, 1994; Merisotis & Phipps, 1999; Russell, 2001; Warren & Holloman, 2005) have discovered no significant difference in student outcomes in distance learning courses versus traditional courses. Regardless, potential students are still concerned about a lack of academic quality in on-line courses. One manner in which to ensure academic quality in distance learning courses is to adequately design the course on the front end.

Carr-Chellman and Duchastel (2000) present the preferred qualities or elements of the “ideal online course.” Once adequately designed, more attention should be paid to educating potential students about the similarities in distance learning courses and traditional, on-campus courses, to include added emphasis in any marketing materials distributed by these programs. Additionally, as the Aviation Accreditation Board International (AABI) is the sole, formal specialized accrediting organization for collegiate aviation programs, the Technology-Based Education Committee of this organization should continue to explore the issues surrounding quality in aviation distance learning programs and the role of the AABI in ensuring that quality. As noted by Bowen et al. (2001), 84 percent of responding institutions in their study thought the organization should consider the development of academic standards for distance education programs.

A second consideration revealed in the data involves the type of individual most interested in distance learning. As previously noted (U.S. GAO, 2002), most distance learning students tend to be older and are more likely to be married. In addition, distance learning students are more likely to pursue studies part time while working full time. As Palmieri (1997, p. 4) explains, the various challenges to be encountered in offering distance learning demand you have a “good knowledge of who your learners are and what their circumstances are likely to be.” In essence, collegiate aviation programs need to be aware of the target population for distance learning programs. Rather than the high school student or young person interested in the on-campus experience, collegiate aviation programs offering distance learning programs should likely focus more on graduate programs and market these programs to those already employed full time in the industry.

The survey data has shown there is an obvious interest in and demand for distance learning programs among airport professionals. Although some mentioned professional or personal commitments that may interfere with the pursuit of an aviation degree, the on-line environment is admittedly more flexible. Whether 5 percent or 20 percent of airport professionals would pursue an on-line aviation

degree if they could financially afford to do so, is unclear. What is clear, however, is that many of those in the airport management profession are interested in pursuing an aviation academic degree, and they feel distance learning is the best manner in which to accomplish that objective. For this reason, one recommendation resulting from this study is for more collegiate aviation programs to consider offering courses and complete degrees via distance learning. Distance learning is already being offered by academic departments at the majority, if not all, of the institutions housing collegiate aviation programs. Further, it appears there are existing degree programs that would lend themselves quite well to the on-line environment.

While associate and bachelor degree distance learning programs meet a need, it appears master degree programs are more suited to the on-line environment and more preferred by those most interested in distance learning -- non-traditional students with full time jobs, such as the airport professionals who participated in this survey effort. As recognized by Prather (in press), airport professionals currently can choose only from four institutions nationwide offering a total of five master degree programs in aviation that can be completed entirely on-line. Although this is admirable, the data indicates more distance learning graduate programs are needed. Specifically, 99 percent of airport professionals believe in the importance of continuing education and 43 percent would like to obtain either a first or additional academic degree in aviation. Considering 85 percent of respondents already possess a bachelor’s degree, this would indicate these individuals are interested in pursuing a graduate degree. Additionally, 89 percent of respondents indicate it would be difficult for them to attend on-campus classes, yet 58 percent indicate it would be easy for them to participate in on-line courses. Finally, 26 to 44 percent of respondents are unaware that some universities offer aviation academic degrees that can be completed entirely on-line and 57 percent believe more universities should offer aviation degree programs via distance learning. This data suggests that with the right mix of marketing to airport professionals (and possibly employer financial support), collegiate aviation

programs would see increased interest in distance learning programs and as a result, would be able to meet the needs of this important segment of the aviation industry.

Various marketing tactics could be utilized by those institutions wishing to recruit airport professionals to enroll in their distance learning programs. First, institutions could have a presence at various American Association of Airport Executives (AAAE) meetings and conferences. Advertisements could be placed in AAAE's Airport Magazine. A direct mail campaign to AAAE members may also prove effective. Additionally, an aviation program may want to explore the possibility of showcasing their distance learning offerings via AAAE's Airport News and Training Network DigiCast. Regardless of which strategy is adopted, increased marketing to airport professionals is important for those aviation programs wishing to increase on-line enrollment among this segment of the aviation industry.

### **CONCLUSION**

Distance learning – the wave of the future. Are collegiate aviation programs ready to ride this wave into a more technologically advanced society? Will the continuing education needs of those employed in the aviation industry be partially fulfilled by collegiate aviation? Will concerns about the quality of distance learning programs be resolved? Although many questions remain, the data presented in this paper attempts to shed light on the demand for aviation distance learning courses and degree programs among airport professionals. Although I am not convinced traditional bricks and mortar institutions will decline in purpose or even cease to exist, I am convinced, as a result of personal experience and data collection, that distance learning programs are growing in popularity and are becoming a convenient and important mode by which those employed full-time in industry are able to enhance their knowledge levels and compete in a more technologically advanced global society.

As distance learning grows ever more pervasive and accepted in the higher education community, potential students will realize the many benefits of distance learning, resulting in increased demand. As this demand grows,

collegiate aviation programs will begin seeing distance learning as simply another pedagogy that is quite useful in educating those same students who once made large sacrifices of time and effort to attend on-campus courses. Although traditional, college-age students will continue to enroll in traditional programs and enjoy the on-campus experience, for those already having done so and now employed full-time in the industry with additional personal and professional commitments, aviation distance learning programs will enable these individuals to maintain an edge in the workforce by completing an additional academic degree. As collegiate aviation rises to meet this challenge, the aviation industry will greatly benefit as a result.

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