Stakeholder Perceptions of Specialized Accreditation by the Aviation Accreditation Board International: Part One - Collegiate Aviation Administrators

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ABSTRACT

The Council on Aviation Accreditation (CAA) was established in 1988 in response to the need for formal, specialized accreditation of aviation academic programs. The first aviation programs were accredited by the CAA in 1992, and as of November 2007, the newly renamed Aviation Accreditation Board International (AABI) recognized a total 78 accredited programs at 26 institutions worldwide. Although the number of aviation academic programs accredited by the AABI has steadily grown, there are currently only 26 percent of UAA member institutions with AABI accredited programs.

In an effort to understand the current status of specialized accreditation in collegiate aviation and the reasons why so few aviation programs are accredited by the AABI, a comprehensive study was undertaken to determine the perceptions held by the following four stakeholders of collegiate aviation regarding specialized accreditation by AABI: administrators of both AABI accredited and non-AABI accredited aviation programs, aviation program students, and aviation industry employers. This article is the first in a series of three reporting the results of this nationwide study.

This study utilized a non-experimental, mixed method research design, with quantitative and qualitative attributes. Descriptive research and cross-sectional surveys were tools used to gather data. Data analysis was conducted on both nominal and ordinal data via frequency distributions, content analysis, chi-square, and Mann-Whitney *U*-test.

Recommendations specific to part one of this nationwide study include: (a) The Aviation Accreditation Board International should explore the intrinsic merits of accreditation to truly determine how beneficial AABI accreditation is and the degree to which AABI is fulfilling its original purpose; (b) Administrators of AABI accredited programs with a strong belief in the value of AABI accreditation to collegiate aviation should educate administrators of non-AABI accredited programs about these benefits; and (c) Administrators of non-AABI accredited programs should examine the new outcomes-based AABI criteria to determine if the flexibility inherent in the new criteria are sufficient to enable their programs to pursue AABI accreditation.

INTRODUCTION

The institutions comprising the system of higher education in the United States, although quite diverse, endeavor toward a common goal of educational excellence. These institutions, in their journey toward excellence, seek to ensure quality of academic programs, receipt of federal funds, ease of student transfer among institutions, and employer confidence in their future graduates (Eaton, 2000). A historically American manner in which institutions achieve these goals has been to seek accreditation.

Accreditation, which has been defined as the "status granted to an educational institution or program that has been found by its peers, including professional and public representatives, to meet stated criteria," can be granted to an institution by national and regional accrediting associations, and to a specific program or school by specialized and professional accrediting associations (Daniel, 1985, p. 49). The voluntary nature of accreditation in higher education is a distinctly American invention (Wellman, 2003). Although governmental agencies in other nations establish, approve, and monitor educational institutions, the United States, through a process of peer- and self-review, maintains a high quality system of higher education with little federal or state interference. Indeed, Young (as cited in Gropper, 1986) states, "higher educational institutions [in the United States] have, for many years, carried out a successful and proud history of self-regulation" (p. 4).

The Aviation Accreditation Board International (AABI) was initially established as

the Council on Aviation Accreditation in 1988 for the purpose of establishing formal specialized accreditation for non-engineering aviation programs. Although a 1988 University Aviation Association (UAA) member survey revealed general support for the establishment of a formal accrediting organization for aviation programs, and an admirable goal of the AABI is to "stimulate collegiate aviation program excellence and self-improvement," there currently exist only 26 institutions with AABI accredited aviation programs and 5 additional institutions with aviation programs in candidate status (AABI, n.d.). This amounts to only approximately 26 percent of UAA member institutions with aviation programs that are accredited by the AABI. In that regard, the main purpose for conducting this research was to determine why so few aviation programs are accredited by the AABI and to measure the perceived value of AABI accreditation among aviation program administrators, collegiate aviation students, and aviation industry employers.

The results of this nationwide study should be useful to educators in college aviation, accreditation organizations (specifically the AABI), and to professional associations representing both collegiate aviation educators and those employed in the aviation industry. By detailing the perceived value of AABI accreditation among collegiate aviation administrators, students, and industry employers, the AABI will better understand how their efforts are viewed among their constituency. Additionally, current non-AABI accredited programs will have a greater sense of the role AABI accreditation plays in student decisions as to which institution to attend, as well as aviation industry hiring decisions. The findings of the study may serve as an impetus for more aviation programs to apply for AABI accreditation. Likewise, the findings may serve to motivate AABI to evaluate the current role and purposes of the organization in light of the issues revealed in the study. This article, however, presents only partial findings of this nationwide study investigating the perceived value of AABI accreditation among various stakeholders. As the first in a series of three articles, it presents a thorough review of the literature and details findings from administrators of AABI accredited and non-AABI accredited collegiate aviation programs.

REVIEW OF THE LITERATURE

An exhaustive search of the literature uncovered only one previously conducted case study of the AABI (Prather, 2006a), and only two studies addressing views of AABI accreditation among collegiate aviation programs (Prather, 2006b; Sherman, 2006). Thus, in addition to the field of aviation, other academic fields were reviewed during this project to locate comparable studies which may prove beneficial in understanding the current issues being faced by the AABI.

While involved with the AABI initial and reaffirmation review of aviation programs at Central Missouri State University, Sherman (2006) experienced the many questions and objections that faculty and administrators often voice about the commitment necessary to conduct the required AABI self-study. As a result, Sherman investigated the reasons programs have for seeking accreditation, the time required to complete the various phases of the accreditation process, the costs of accreditation, and the use of faculty and staff to complete the self-study. His qualitative study garnered an overall response rate of 25.6 percent. In his findings, it is clear that AABI accredited programs believe strongly in AABI accreditation and point to the many benefits AABI accreditation provides (including higher quality, rigorous self-review, outside guidance, etc.). It is also clear that non-AABI accredited programs see very few benefits and point to why they are not accredited (including lack of student and industry awareness, the expense involved, standards which are applicable only to larger programs, etc.) Although the study concludes by summarizing the findings, no recommendations are offered to improve the AABI accreditation process or assist AABI in more fully developing into a worldwide accrediting organization. Interestingly, Sherman (2006) recommended a future study that examines student perception of AABI accreditation and what role, if any, such accreditation played on student decisions as to

which institution to attend. The current study is designed to address that issue, among others.

Although the Accreditation Board of Engineering and Technology (ABET) currently accredits programs at approximately 550 institutions, only approximately 3 percent of engineering management (EM) programs specifically, are accredited by ABET in the U.S. A study by Farr & Bowman (1999) examined EM programs to determine the causes for so few ABET accredited EM programs and the potential for increased efforts at accreditation as a result of recently revised ABET accreditation standards. Their survey of a sample of all undergraduate and graduate EM programs revealed that ABET accreditation is simply not a goal of the majority of EM programs. Ironically, however, the authors discovered that ABET accreditation is important to most of the institutions surveyed. In trying to understand this surprising disconnect, the researchers discovered that the most frequently cited reason for not seeking accreditation is the ABET accreditation criteria (with some schools apparently lacking the required depth of engineering in their curriculum and student backgrounds). An additional reason for not seeking accreditation is insufficient resources (possibly referring to the time and personnel required to complete a necessary self-study). Although the 1999 survey revealed that five programs planned to seek accreditation within the next few years, the authors are quick to conclude that "the challenge [in increasing the number of ABET accredited programs] will be to convince EM program directors that the payoff outweighs the significant investment in resources required for accreditation" (Farr & Bowman, 1999, p. 11). That could be true, quite possibly, for aviation programs as well.

The accreditation of business schools has also been studied (Roller, Andrews, & Bovee, 2003; Brennan & Austin, 2003), and although there currently exists three specialized accrediting organizations in that field, these studies reveal interesting findings that are applicable to this study. Roller, et al. (2003) point out that there had not previously been any systematic comparison of the perceived costs and benefits of, and motivations for, specialized accreditation across the three business school accrediting associations (American Assembly of Collegiate Schools of Business [AACSB], Association of Collegiate Business Schools and Programs [ACBSP], and the International Assembly for Collegiate Business Education [IACBE]). As such, these authors (similar to the author of this study) desired to determine the value of accreditation and the reasons why some programs had chosen to seek accreditation while others had not. Utilizing a researcher-developed questionnaire, they gathered demographic and attitudinal information from a random sample of the business deans of both accredited (either AACSB, ACBSP, or IACBE) and non-accredited programs, resulting in 122 responses. The research effort discovered that 24 percent of these programs did not have specialized business accreditation, and of those, 30 percent were not currently in some stage of the accreditation process. In determining the perceived value of specialized accreditation, the respondents rated the following five variables as beneficial (in order of decreasing benefit): (a) accountability for program improvements, (b) opportunities to share techniques/successes/challenges with other institutions facing similar issues, (c) marketing advantages, (d) faculty recruitment advantages, and (e) recognition as a superior institution. Of most significance to this research effort were the reasons provided by non-accredited programs for not seeking accreditation. Various reasons included expense and effort necessary for accreditation, feeling no pressure from current stakeholders, not currently able to meet accreditation standards, and no time available for the self-study. Overall, non-accredited programs viewed accreditation as less important for ensuring program competitiveness and the quality of student learning than did accredited programs. Interestingly, the researchers found very little difference in program goals among accredited and non-accredited programs. The authors summarize the conclusion of this finding by stating that "the decision to seek accreditation is not caused by differences in program goals but rather by the institution's perception that accreditation will help its business school attain those goals" (Roller et al., 2003, p. 203). Further research comparing the success at achieving program goals among accredited and

non-accredited programs would provide additional insight in this area.

Brennan and Austin (2003) apply a qualitative design to perform a case study of one business school that sought AACSB accreditation. Their study recognizes the oftentimes strong organizational inertia that must be overcome in implementing the improvements necessary to ensure a successful accreditation effort. In addition, other obstacles must be confronted and successfully dealt with. The obstacles include necessary structural changes, workload increases, accountability, consistency, adherence, and project control.

Rather than examining the perceived value of specialized accreditation in social work education, Mabrey (1998) performed a qualitative analysis by examining accreditation decisions made by the Council on Social Work Education's (CSWE) Commission on Accreditation (COA) from 1985 to 1992. Similar to the AABI in the aviation discipline, the CSWE is the only specialized accrediting organization in the social work discipline. In researching the literature for this topic, Mabrey noted that her study was unique in that there had been no previous empirical analysis of the COA's decisions over a substantial period of time. Further, she discovered that social work was not alone, and indeed, many disciplines are lacking longitudinal analyses of decisions made by their respective accrediting organizations. This, however, is understandable as this information is usually confidentially maintained by the accrediting organization. The methodology chosen for this study (which required the permission of the CSWE Division of Standards and Accreditation) included the review of all COA letters of decision for the seven year time period. Mabrey determined that 66 percent of programs received initial accreditation with no further review, and 51 percent of programs were found in full compliance upon review for reaffirmation of accredited status. Mabrey further found that the evaluative standard of curriculum proved to be the most difficult to meet on first attempts. Overall, her findings suggest that the vast majority of social work education programs are successful in obtaining either initial accreditation or reaffirmation of accreditation from the COA. Further, less than five percent of all programs ultimately failed to achieve the accreditation status for which they had applied. These findings should prove encouraging for social work education programs (Mabrey, 1998).

Kniess' (1986) study focused on accreditation by the National Recreation and Park Association (NRPA). Specifically, he examined why some recreation and park programs seek NRPA accreditation and others do not. His survey of chief academic officers and department heads revealed a significant difference in the manner in which chief academic officers and department heads perceived the NRPA accreditation process. Further, some of the respondents to his survey indicated that specialized accreditation in recreation was not important since graduation from an accredited program is not a prerequisite for employment. As one respondent explained (Kniess, 1986, p. 119), "'our alumni are successful without accreditation; can we justify the expense for accreditation from something we are already doing?'" Chief academic officers, in general, felt the specialized accreditation process was not worth the time and effort.

Specialized accreditation in baccalaureate nursing programs was a focus of Litwack's (1986) study. Specifically, Litwack endeavored to explore the attitudes of program and institutional administrators towards specialized accreditation and its impacts on nursing education programs. With a usable response rate of 77 percent from Program Directors and 59 percent from Academic Vice-Presidents, Litwack gathered additional reasons for seeking accreditation, as well as benefits of accreditation. Interestingly, Program Directors consistently rated the benefits of accreditation of higher importance than did Academic Vice-Presidents. Litwack's findings led her to initially recommend that specialized accreditation be eliminated altogether due to costs, questioned purpose, duplication of effort, and alternative quality assurance tools. However, in reality, she explains, this is not likely to occur and is, in fact, not recommended because (a) institutional accreditation, as it exists today, is not prepared to handle the quality issues of specialized accreditation; (b) specialized accreditation is still serving a vital

role in the identification of programs for funding, for graduate school admissions, and for institutional support; and (c) while many professional programs have alternative quality assurance tools available, other general education departments do not (Litwack, 1998).

Nursing education programs were the focus of Gropper's (1986) study. Specifically, she conducted a study comparing 14 accredited nursing programs with 14 similar non accredited nursing programs on selected indices of quality, attempting to determine, in essence, if accredited programs were, in fact, of higher quality than non-accredited programs. Additionally, interviews were conducted with each of the program administrators to determine why they either sought or did not seek specialized accreditation. Interestingly, Gropper found no differences between accredited and non-accredited programs in terms of program goals and objectives, distributions of curriculum hours, and student performance on licensing exams. Only small differences (favoring accredited programs) were discovered in faculty preparation at the doctoral level and number of graduates working outside the field of nursing. Reasons for not seeking specialized accreditation included costs and uncertainly regarding the validity of the specialized accreditation criteria. Reasons for seeking specialized accreditation included status, prestige, increased self-confidence of faculty, and maintaining options for students in their future work (Gropper, 1986).

In a study of counselor education programs, Rosenbaum (1984) purposed to determine why some counselor educators seek specialized program accreditation, while others do not. Interestingly, at the time of Rosenbaum's study, there were five national specialized accreditation agencies in counselor education. Rosenbaum discovered that economic and status reasons are of higher importance in seeking accreditation than those relating to quality assurance and program improvement. Additionally, respondents indicated that accreditation had a positive effect on an institution's program in areas such as recruiting faculty and students, helping graduates meet licensing requirements, and encouraging program evaluation.

In addition to these studies from academic fields other than aviation, and the studies completed by Prather (2006b) and Sherman (2006), previous studies (Kuhns, 1994; Lindseth, 1996, 1998, and 1999) have been conducted on quality in aviation education (albeit to the exclusion of AABI's role). Kuhns (1994) attempted to establish a series of national norms of quality in aviation education by surveying aviation program administrators. His study revealed that the number one indicator of a high quality aviation program was high quality faculty. Linking this finding to the AABI and professional credentials, Johnson & Lehrer (1995, p. 252) mention that the CAA "will be more willing to professionally accredit institutions that employ faculty members with a doctorate . . . ." The respondents to Kuhns' study felt that the University of North Dakota was the best four-year program in the U.S. and Embry-Riddle Aeronautical University was the best Master's degree program. Interestingly, both of these institutions, at the time of Kuhns' study, had (and continue to have) AABI accredited programs.

In response to the fact that the majority of non-engineering aviation programs are not AABI accredited, Lindseth (1998) endeavored to determine the quality of four-year aviation programs in the U.S. (using criteria other than AABI accreditation standards). He notes that the accreditation criteria mainly address input variables (such as resources, facilities, and faculty), whereas, in determining program quality, we must also measure the outcomes of those programs. Interestingly, although this was not the case at the time of Lindseth's study, AABI has recently transitioned to outcomes-based criteria. Lindseth's survey of 130 experts resulted in the creation of a model of program quality for baccalaureate aviation programs. This model includes the following ten categories: (a) curriculum, (b) students, (c) faculty, (d) program activities, (e) equipment, (f) facilities, (g) leadership, (h) resources, (i) reputation, and (j) value.

The studies previously reviewed, although most are not specific to collegiate aviation, provide a solid foundation for further understanding specialized accreditation and the issues associated with the acceptance of

specialized accreditation as a means to ensure quality in specific academic programs. Regardless of the popularity of a particular specialized accrediting organization, these studies reveal that many academic fields seem to have both proponents and opponents of specialized accreditation. The results of this current study may prove useful to various stakeholders as the value of specialized accreditation is being questioned by critics and the number of AABI accredited programs seems less than in other academic fields.

METHODOLOGY

Limitations & Delimitations

As stated by Creswell (2003), all research strategies and statistical procedures have limitations and delimitations. Clearly, this study is no different. A limitation exists with regard to results that might not accurately reflect the opinions of all members of the included populations due to the failure of some sample respondents to answer all open-ended questions and respond with candor.

Delimitations involve the use of a non-experimental research design, which did not allow for the manipulation of independent variables or the understanding of causal relationships. By adopting a non-experimental, mixed method research design, with both quantitative and qualitative attributes, the research questions devised for this study were not answered definitively. Furthermore, this descriptive study will allow only limited relationship conclusions to be drawn (McMillan, 2004).

In addition to delimitations regarding the research design, delimitations as a result of the statistical procedures utilized in data analysis also warrant discussion. The vast majority of questionnaire items asked respondents to rank their level of agreement or disagreement on a Likert five-point scale. Due to the problems in measuring noncognitive traits, such as attitudes and preferences, and in the different manner in which respondents may define "strongly agree" and "agree", for example, the data collected on these Likert items is categorized as ordinal. A number of other items only collected nominal data. As a result, standard statistical methods such as means, *t* tests, or analysis of variance were inappropriate for the majority of questionnaire items. By relying on non-parametric tests, such as the chi square goodness of fit, Mann-Whitney *U*-test, and the Kruskal-Wallis test, there are limitations to any conclusions that may be drawn.

Lastly, to allow for easier data analysis, close-ended items were developed for the questionnaires. However, administrators of non-AABI accredited programs disagreed with the majority of items used to gauge reasons why programs had not sought AABI accreditation. Thus, their level of disagreement does not provide a true representation of their beliefs on this topic.

Research Design

This study utilized a non-experimental, mixed method research design, with both quantitative and qualitative attributes. As contrasted to experimental research, nonexperimental research is used to "describe existing phenomena without changing some condition to affect subjects' responses" (McMillan, 2004, p. 176). As the objective of this study was to investigate the current attitudes about AABI and AABI accreditation among stakeholders, a nonexperimental research design was deemed most appropriate.

The research design is a "mixed method" design in that both qualitative and quantitative data were gathered via cross-sectional surveys. As stated by Creswell (2003), it is not so much quantitative versus qualitative, but rather "how research practice lies somewhere on a continuum between the two" (p. 4). Quantitative and qualitative data were collected via close-ended items and open-ended items on each questionnaire. In essence, this study is considered a descriptive study with data collection via cross-sectional surveys. Plainly, a "descriptive study simply describes a phenomenon" (McMillan, 2004, p. 176).

To effectively apply a mixed method approach, the concept of "concurrent triangulation" was also adopted. Triangulation simply refers to the collection of data from multiple sources aimed at corroborating the same fact or phenomenon (Yin, 2003). More specifically, the strategy of concurrent triangulation, as defined by Creswell (2003),

refers to the use of two different methods, such as qualitative and quantitative, during the same data collection period in an attempt to confirm or corroborate findings. This strategy was chosen, as Creswell (2003) recommends, in an effort to "offset the weaknesses inherent with one method with the strengths of the other method" (p. 217). Thus, rather than collecting quantitative data and qualitative data and analyzing these data in isolation, the data were analyzed to find themes of similarity and divergence between the two.

INSTRUMENT DESIGN

Survey of Administrators of AABI Accredited Programs

The researcher developed a questionnaire entitled "Survey of Administrators of AABI Accredited Programs" to solicit opinions regarding AABI accreditation from the administrators or department chairs of AABI accredited programs. The 19 item questionnaire was designed to take less than 5 minutes to complete and was created by applying Dillman's (2000) principles to create a user-friendly and interesting questionnaire that would garner a high response rate and produce useful data. Specifically, the questionnaire contained 17 closed-ended items and two open-ended items.

Survey of Administrators of non-AABI Accredited Programs

The questionnaire entitled "Survey of Administrators of Non-AABI Accredited Programs" was developed to gain insight into why these programs were not AABI accredited. The 18 item questionnaire, which was designed to take less than 5 minutes to complete, contained 16 closed-ended items and two open-ended items.

Validity and Reliability of Measurement

As explained by Alreck and Settle (1995), "a measurement of any kind is valid to the degree it measures all of that and only that which it's supposed to measure" (p. 58). Face validity of the questionnaires was enhanced by informally allowing persons not involved in the study to review the questionnaires for accuracy and ease of completion, resulting in several revisions to the questionnaires. Content validity was enhanced by allowing a group of experts to review each of the questionnaires (Gay and Airasian, 2000). This group of experts consisted of one member of the University Aviation Association (UAA), one member of the Aviation Accreditation Board International (AABI), and the researcher's supervisory committee chair. This jury was presented with an overview of the study and the purpose of the questionnaires. In adapting Litwack's (1986) method, each juror was asked to rate each question on a three-point scale of importance: 1-important; 2-important, but requires revision; 3-not important. Items rated by two out of three jurors as important or important, but requires revision, were included in the questionnaire. In addition to the ranking of items on a scale of importance, constructive comments were also received, resulting in additional questionnaire refinement.

In addition to a focus on validity, reliability was also addressed. Reliability, as explained by Alreck and Settle (1995), means "freedom from random error" (p. 58). A fundamental test of reliability is that of repeatability (Alreck and Settle, 1995). This survey was administered only once, as lack of resources and time did not allow for extensive test-retest methodology. However, McMillan (2004) explains that reliability of an instrument can be measured in terms of internal consistency via the Cronbach alpha, appropriate for instruments in which there is no right or wrong answer to each item. The Cronbach's reliability coefficients for each group were 0.750 and 0.546. As McMillan (2004) states, reliability coefficients of 0.65 are acceptable for measuring noncognitive traits, whereas studies of groups can tolerate a lower reliability, sometimes as low as 0.50 in exploratory research. Further, as suggested by McMillan (2004), additional efforts were implemented to minimize the lower than desired internal consistency of this questionnaire. First, with each of these questionnaires, there were standard conditions of data collection, in which each of the four groups were provided the same directions. Also, the instruments were appropriate in reading level and language of the subjects. Lastly, the questionnaires were brief, thus not experiencing the problems associated with lengthy questionnaires.

In a final effort to address issues of validity and reliability, as well as pre-test the operation

of each questionnaire, a pilot study was conducted. A main goal of this pilot study was to determine if the questionnaires were easily understood and could be completed within a reasonable time period. The pilot study consisted of five members randomly selected from each of the sample populations. Responses received from both administrators of AABI and Non-AABI accredited programs during the pilot study closely matched responses collected from these same two groups during the full study.

STUDY POPULATION

Two questionnaires were designed to gauge the opinions of the department administrators of both AABI and non-AABI accredited programs. The survey population (and sample) consisted of one department administrator (or chair) from each of the non-engineering aviation academic program departments that are located at the 23 institutions nationwide with AABI accredited programs (at the time of this study), as well as 76 institutions nationwide with non-AABI accredited programs (utilizing the University Aviation Association institutional member list at the time of this study). The University Aviation Association is a nationwide organization representing collegiate aviation, and contains those programs both accredited by AABI and not accredited by AABI (UAA, n.d.). For administrators of AABI accredited programs, sampling error was +/- 6.3 percent at the 95 percent confidence level, calculated from a 91.3 percent response rate from a population size of 23. For administrators of non-AABI accredited programs, sampling error was +/- 11.8 percent at the 95 percent confidence level, calculated from a 47.36 percent response rate from a population size of 76.

SURVEY PROCEDURES

The implementation of the questionnaires designed for this survey project closely adhered to Dillman's (2000) Tailored Design Method. Specifically, three contacts were made via first-class mail, while the fourth and fifth contacts were made via e-mail and fax, respectively. Each of these five contacts were utilized for the purpose of increasing survey response rate. As Dillman (2000) explains, "Multiple contacts have been shown to be more effective than any other technique for increasing response to surveys by mail" (p. 149). The first contact was made with recipients on June 22, 2007, and the final contact was made on July 30, 2007.

DATA ANALYSIS

Both quantitative and qualitative data were collected as a result of implementing this nonexperimental mixed method research design. The majority of quantitative data collected during this research study involved nominal and ordinal data. As Gravetter and Wallnau (2004) state, "measurements on a nominal scale label and categorize observations, but do not make any quantitative distinctions between observations" (p. 20). Nominal data were collected with dichotomous items (Yes/No) and checklist items. Regarding ordinal data, Gravetter and Wallnau (2004) explain that although ordinal scales allow a determination of differences and direction of differences, they do not allow the researcher to determine the magnitude of difference. Ordinal data was collected during this research study through the liberal use of Likert-scale items on all questionnaires. As Ravid (1994) explains, Likert scale items do not fit the rules for interval data, as "one may question whether the interval or distance between 'strongly agree' and 'agree' is the same as the interval between 'neutral' and 'disagree'" (p. 8). As a result, non-parametric statistical analyses were heavily relied upon in analyzing these quantitative data. SPSS version 15.0 and Microsoft Excel were the statistical analysis software used to analyze quantitative data collected during this study. Specifically, the chi-square test for goodness of fit was utilized to analyze nominal data collected during the study (mainly Yes/No responses and checklist items). The general goal of the chi-square test for goodness of fit is to compare the data with each null hypothesis to determine how well the data fit the distribution specified in the null hypothesis. The Likert-scale ordinal data were analyzed using the Mann-Whitney *U* test, the Kruskal-Wallis test, or simple frequency distributions. When examining data from only one population, frequency distributions were used to express ideas and beliefs most widely held among respondents. When analyzing data from two populations (administrators of AABI

and non-AABI accredited programs, for instance), the Mann-Whitney *U*-test was utilized to evaluate relationships between these two groups on various issues. The Mann-Whitney *U* test is appropriate for testing hypotheses with ordinal data (Gravetter and Wallnau, 2004).

To analyze the qualitative data collected during this study, content analysis via a manual coding effort was employed. As Berg (2004) explains, "[content analysis] is helpful in many types of exploratory or descriptive studies" (p. 288). Specifically, comments to open-ended items were printed out and separated with scissors so that each respondent's comment was on a separate piece of paper. For some comments that contained several themes, further data reduction was necessary by using scissors to separate these specific comments. For example, if one respondent commented using several sentences, these several sentences may have touched upon several different themes, thus requiring further separation. This was done to allow grouping of comments into general theme categories. After comments were separated into the theme categories based on their general intent, the number of responses in each theme category was then counted numerically to allow general conclusions to be drawn from the qualitative data.

FINDINGS

Although the nationwide study included 11 research questions, part one of this study presents the abbreviated findings of only 7 of these research questions.

1. Why are AABI accredited aviation programs currently accredited?

To answer this research question, administrators of AABI accredited programs were asked to explain why the aviation program(s) at their institution initially decided to seek AABI accreditation. This open-ended item yielded responses from 22 participants. Content analysis (as described by Berg, 2004) was implemented to discover themes in the responses. This resulted in a total of 38 responses in the following 8 theme categories (in declining number of responses): (a) status/prestige, (b) standards, (c) recruiting mechanism, (d) external peer review, (e) program improvement, (f) required, (g) industry relations/benefits, and (h) leverage. Other popular reasons for seeking AABI accreditation include standardization, recruiting, peer review, program improvement, requirement, industry relations, and leverage. Regarding this last theme, one respondent simply exclaimed, "To protect us!"

2. Are administrators of AABI accredited aviation programs motivated to maintain existing AABI accreditation?

In an effort to answer this research question, administrators of AABI accredited programs were simply asked, "Does your program(s) have plans to maintain existing AABI accreditation?" This dichotomous question allowed only a "Yes" or "No" response. Fully 100 percent of responding administrators from AABI accredited programs explained their program does have plans to maintain existing AABI accreditation.

3. Why are non-AABI accredited aviation programs currently not accredited?

To answer this question, an open-ended item was included on the "Survey of Administrators of Non-AABI Accredited Programs." Specifically, participants were asked to explain "why the aviation programs at your institution are not currently AABI accredited." This item yielded responses from 34 participants. As with research question one, content analysis was implemented to discover themes in the responses. The responses could easily be categorized into the following seven theme categories (in declining number of responses): (a) time/expense/effort versus benefits, (b) currently pursuing AABI accreditation, (c) curriculum requirements/standards, (d) smaller program, (e) similar accreditation, (f) lack of awareness, and (g) currently successful.

4. Are administrators of non-AABI accredited aviation programs motivated to seek initial AABI accreditation?

Research question four was addressed with the use of both quantitative and qualitative data. Quantitatively, research question four was addressed by presenting participants with the

following question: "Does your program have plans to pursue AABI accreditation at some point in the future?" For this research question, $H_{0:}$ Administrators of non-AABI accredited programs are divided equally (no preference) about plans to pursue AABI accreditation at some point in the future. For these data, χ^2 (1, n=35) = 3.457, p>0.05. With a critical region beginning at χ^2=3.84 at the 95 percent confidence interval, the decision was made to fail to reject H_0. Therefore, at the 0.05 level of significance, the data do not provide sufficient evidence to conclude that there is a significant difference among administrators of non-AABI accredited programs regarding their plans to pursue AABI accreditation at some point in the future, even though over 65 percent of respondents from non-AABI accredited programs have plans to pursue AABI accreditation at some point in the future.

Qualitatively, research question four was also addressed by presenting participants with the following open-ended question: "If your program(s) is planning on seeking AABI accreditation, please explain what motivated this decision." This item yielded responses from 24 participants. As with research questions one and three, content analysis was implemented to discover themes in the responses. The 24 responses were categorized into the following 7 themed categories (in declining number of responses): (a) prestige, (b) required, (c) improvement, (d) standards, (e) marketing, and (f) leverage and internal review.

5. Is there a relationship between administrators of AABI accredited programs and non-AABI accredited programs regarding their views of AABI and the benefits of AABI accreditation?

Four items were measured to provide insight into the relationship highlighted in this research question. Specifically, the Mann-Whitney *U*-test found sufficient evidence to support a significant difference among administrators of AABI accredited and non-AABI accredited programs regarding their level of agreement with two statements: (a) "AABI accreditation is beneficial to the AABI accredited program," and (b) "It would be beneficial if more aviation programs were accredited by the AABI." On the other hand, the data do not provide sufficient evidence to conclude there is a significant difference among administrators of AABI accredited and non-AABI accredited programs regarding their level of agreement with the following two statements: (a) "Prior to receiving this survey I was unaware of the Aviation Accreditation Board International," and (b) "The AABI should better market itself to collegiate aviation programs."

6. Among administrators of AABI accredited programs, which beliefs most influenced the decision to seek and attain AABI accreditation?

Nine items were developed to address this research question. Respondents were asked to indicate how strongly each of these statements reflected their beliefs as to why their program sought and attained AABI accreditation. Based on the frequency of responses, the following 8 items were agreed to by a minimum of 75 percent of respondents: (a) "To ensure that the program meets standards established by the profession," (b) "To help clarify the program's mission and future direction," (c) "To help attract and recruit highly qualified students and faculty," (d) "To enhance program visibility and recognition," (e) "To assist potential students in selecting a quality training program," (f) "To facilitate the participation of students and faculty in an intensive program evaluation," (g) "To identify for employers those programs which have successfully met the profession's standards of preparation," and (h) "To gain the confidence of the educational community, related professions, and the public." The following item was agreed to by only 50 percent of respondents: "To protect programs from internal budgetary constriction in periods of curtailed enrollment."

7. Among administrators of non-AABI accredited programs, which beliefs most influenced the decision not to seek AABI accreditation?

Eight items were developed to address this research question. Based on frequency of responses, the following four items were disagreed with by the majority of respondents: (a) "Our program is too new to seek accreditation," (b) "We cannot get approval

from dean and/or president to seek AABI accreditation," (c) "Our programs do not meet AABI standards," and (d) "We feel the AABI accreditation standards are inappropriate." The majority of respondents only agreed with the following item: "The preparation of the required self-study is too time consuming." Lastly, the following two items gathered a fairly even response of agreement and disagreement: (a) "The faculty in our department do not feel there are adequate benefits for the cost and time involved," and (b) "It is too costly to seek accreditation."

CONCLUSIONS

1. Why are AABI accredited aviation programs currently accredited?

The answer to this question may be summed up with a brief statement: "Because they believe in it." More specifically, administrators of AABI accredited programs are committed to the specialized accreditation process and AABI accreditation in particular. Many of these administrators play an active role in AABI, chairing committees and playing an integral role in matters such as revising the accreditation standards. They enjoy the prestige of being in a select group of AABI accredited programs. They appreciate being held to higher standards, and the benefits realized by reaching these higher standards. They use their AABI accreditation status as a recruiting mechanism, for both students and new faculty. They also benefit from having a rigorous external review of their programs. Accreditation seems to create a culture of continuous program improvement, which then leads to better career opportunities for students and stronger relations with industry. As one respondent adequately summarized, "We wanted to be in step with the best aviation programs in the USA."

2. Are administrators of AABI accredited aviation programs motivated to maintain existing AABI accreditation?

Of those responding to the survey, the answer is clearly, "Yes." In fact, 100 percent of responding administrators of AABI accredited programs are motivated to maintain existing AABI accreditation. Thus, it seems that although obtaining AABI accreditation is not without sacrifice, once it has been obtained, the benefits are real, and it is in the program's best interest to maintain this accreditation.

3. Why are non-AABI accredited aviation programs currently not accredited?

Just as there are multiple reasons why a program seeks accreditation, there are also multiple reasons why a program chooses not to seek AABI accreditation. Generally, the majority of these reasons center around the cost/benefit equation. As one respondent stated, "Cost and time to complete the accreditation process. What is the benefit to our institution for obtaining this accreditation?" Similarly, another respondent mentioned that "Cost concerns are the primary reasons we have not sought AABI accreditation." Surprisingly, the theme category gathering the second most number of responses related to current efforts by programs pursuing AABI accreditation. As one respondent stated, "We are currently pursuing accreditation. Self studies have been conducted in the past but have not been acted upon." Other reasons provided by participants for not currently being AABI accredited include curriculum requirements, having a smaller program not in line with AABI, possessing similar accreditation, lack of awareness of AABI, and being currently successful without AABI. Interestingly, seven of the 35 comments received by respondents pointed to their current efforts to pursue AABI accreditation.

4. Are administrators of non-AABI accredited aviation programs motivated to seek initial AABI accreditation?

Although 65.7 percent of responding administrators stated that their programs do have plans to pursue AABI accreditation at some point in the future, the data, as a result of a chi-square analysis at the 0.05 level of significance, do not provide sufficient evidence to conclude that there is a significant difference among administrators of non-AABI accredited programs regarding their plans to pursue AABI accreditation at some point in the future.

To support this quantitative data, qualitative data were also collected to explore why some non-AABI accredited programs made the

decision to begin pursuing AABI accreditation. Of these seven themes uncovered in this data, two themes were most widely held among respondents: (a) prestige/credibility, and (b) required by the university. So, on the one hand, it is a voluntary motivation for a higher level of prestige and credibility, and on the other, a mandate from administration. This would lead one to believe that the source of motivation is just as important as the level of motivation expressed by administrators of non-AABI accredited programs. Indeed, a mandate for accreditation would likely lead to a reluctant pursuit of AABI accreditation with little buy-in and inadequate understanding of the benefits of such accreditation.

5. Is there a relationship between administrators of AABI accredited programs and non-AABI accredited programs regarding their views of AABI and the benefits of AABI accreditation?

To answer this question, four items were developed and appeared on the questionnaire for both administrators of AABI accredited programs and non-AABI accredited programs. A Mann-Whitney *U*-test found sufficient evidence to support a significant difference among administrators of AABI accredited and non-AABI accredited programs regarding their level of agreement with two statements: (a) "AABI accreditation is beneficial to the AABI accredited program," and (b) "It would be beneficial if more aviation programs were accredited by the AABI." The first statement garnered 90 percent agreement by administrators of AABI accredited programs and 57.1 percent agreement by administrators of non-AABI accredited programs. The second statement garnered 85 percent agreement by administrators of AABI accredited programs and only 42.9 percent agreement from administrators of non-AABI accredited programs.

On the other hand, the data do not provide sufficient evidence to conclude there is a significant difference among administrators of AABI accredited and non-AABI accredited programs regarding their level of agreement with the following two statements: (a) "Prior to receiving this survey I was unaware of the Aviation Accreditation Board International," and (b) "The AABI should better market itself to collegiate aviation programs." The first statement garnered 95 percent disagreement by administrators of AABI accredited programs and 82.9 percent disagreement by administrators of non-AABI accredited programs. The second statement garnered 45 percent agreement by administrators of AABI accredited programs and 37.2 percent agreement by administrators of non-AABI accredited programs.

Clearly, these two groups of administrators significantly differ with respect to their belief of the benefits of AABI accreditation to the AABI accredited program and the need for more programs to be AABI accredited. Generally, administrators of existing AABI accredited programs are pro-AABI, while those chairing programs not accredited by AABI tend to be opponents, or at least willing to question the proposed benefits. There are however, some areas of agreement, or at least areas lacking a significant difference among these two groups. First, both groups tend to be aware of AABI. As noted above, although 45 percent of administrators of AABI accredited programs and 37.2 percent of administrators of Non-AABI accredited programs indicated agreement with regard to whether the AABI should better market itself to collegiate aviation programs, these groups also indicated some neutrality with this statement (50 percent and 60 percent, respectively).

6. Among administrators of AABI accredited programs, what beliefs most influenced the decision to seek and attain AABI accreditation?

The nine items developed to gain insight into this research question were generally agreed to by a minimum of 75 percent of respondents. However, one item was agreed to by only 50 percent of respondents: "To protect programs from internal budgetary constriction during periods of curtailed enrollment." Therefore, the beliefs that most widely influenced the decision to seek and attain AABI accreditation, among administrators of AABI accredited programs, are as follows (listed in declining number of responses): (a) "To ensure that the program meets standards established by the profession," (b) "To gain the confidence of the educational

community, related professions and the public," (c) "To enhance program visibility and recognition," (d) "To help attract and recruit highly qualified students and faculty," (e) "To identify for employers those programs which have successfully met the profession's standards of preparation," (f) "To help clarify the program's mission and future direction," (g) "To assist potential students in selecting a quality training program," and (h) "To facilitate the participation of students and faculty in an intensive program evaluation." When compared to qualitative responses collected during this study, these findings are expected and in line with respondent comments.

7. Among administrators of non-AABI accredited programs, what beliefs most influenced the decision not to seek AABI accreditation?

Eight items were included on the "Survey of Administrators of Non-AABI Accredited Programs" to address this research question. Based on frequency of responses, the following four items were disagreed with by the majority of respondents: (a) "Our program is too new to seek accreditation," (b) "We cannot get approval from dean and/or president to seek AABI accreditation," (c) "Our programs do not meet AABI standards," and (d) "We feel the AABI accreditation standards are inappropriate." The majority of respondents only agreed to the following item: "The preparation of the required self-study is too time consuming." Lastly, the following two items gathered a fairly even response of agreement and disagreement: (a) "The faculty in our department do not feel there are adequate benefits for the cost and time involved," and (b) "It is too costly to seek accreditation."

These findings are similar to those discovered in other studies (Farr & Bowman, 1999; Gropper, 1986; Kniess, 1986; Liwack, 1986; Roller, Andrews, and Bovee, 2003; Rosenbaum, 1984; & Sherman, 2006). In fact, many previous studies have found that most non-accredited programs question the resources necessary to pursue specialized accreditation, especially in the form of the voluminous self-study that must be prepared. Possibly best summarized by Farr & Bowman (1999, p. 11), "the challenge [for specialized accreditors in increasing the number of specialized accredited programs] will be to convince . . . program directors that the payoff outweighs the significant investment in resources required for accreditation."

DISCUSSION

AABI Accredited Programs

Of those institutions with AABI accredited programs, the findings reveal a strong interest in maintaining AABI accreditation. In fact, not one responding administrator of a currently accredited program has plans to discontinue AABI accreditation. Clearly, these program administrators realize benefits from AABI accreditation, including improved credibility, enhanced recognition, and positioning of the program as a leader in collegiate aviation. According to this group, therefore, once accredited by AABI (even though the process may have required a great deal of work on the part of faculty and administration), the benefits seem to outweigh the costs. As indicated in the recommendations, this point must be stressed to non-AABI accredited programs.

Non-AABI Accredited Programs

Although there are many collegiate aviation programs that are not accredited by AABI, the findings indicate this is not due to the belief that AABI accreditation is not beneficial to the accredited program. As indicated earlier, a majority of responding administrators from non-AABI accredited programs do have plans to pursue AABI accreditation at some point in the future. This is indeed good news for AABI and for collegiate aviation in general. However, for those programs not interested in pursuing AABI accreditation, the findings of the study shed light onto the various reasons for this. Specifically, comments center around several areas, including inappropriateness of AABI standards, current accreditation by another agency (such as ABET), successful without AABI accreditation, and the time and resources necessary to pursue AABI accreditation (e.g., the Self-Study requirement).

Administrators of non-AABI accredited programs were also asked why their programs were not currently accredited by AABI. More

specifically, respondents were asked to indicate their level of agreement with eight statements. Surprisingly, none of these statements were highly regarded among respondents. In fact, there was general disagreement among each of the following statements: (a) our program is too new to seek accreditation, (b) we cannot get approval from our dean and/or president to seek AABI accreditation, (c) the faculty in our department do not feel there are adequate benefits for the cost and time involved, (d) it is too costly to seek accreditation, (e) the preparation of the required self-study is too time consuming, (f) our programs do not meet AABI standards, (g), we feel the AABI accreditation standards are inappropriate, and (h) we do not have sufficient information to decide. What then, are the reasons why non-AABI accredited programs have not sought accreditation? Although not completely clear, the qualitative responses centered around six main themes: (a) time/expense/effort versus benefits, (b) curriculum requirements/standards, (c) smaller program, (d) similar accreditation, (e) lack of awareness, and (f) currently successful. As one may gather, a number of these areas were addressed in the statements provided in the questionnaire. However, it seems that respondents were more willing to give open-ended answers than be forced into admitting their programs do not currently meet AABI standards, for instance. In any event, the reasons given for not pursuing AABI accreditation are as diverse as the programs represented. More research is needed to obtain more significant findings in this area.

RECOMMENDATIONS

Although recommendations to AABI should naturally flow from these findings, it is prudent to discuss the changing landscape of accreditation in general and of specialized accreditation by AABI in particular. In essence, substantial changes are now in effect that will greatly affect the manner in which collegiate aviation programs endeavor toward AABI accreditation, and subsequently the manner in which AABI reviews programs for accreditation. Simply, these changes involve a transition from content-based standards to outcomes-based standards. As a result, the specialized accrediting environment has changed. No longer must collegiate aviation programs offer specific courses in a specific sequence to meet AABI standards. Today, these programs must develop learning outcomes for each aviation concentration the institution wishes to accredit through AABI. These learning outcomes, although historically a part of the higher education landscape to some degree, now must be formalized. Programs must develop learning outcomes for their entire program (to include both aviation courses and general education courses), devise methods of assessment to be certain these learning outcomes are being achieved, and then collect evidence to show (an AABI Visiting Team, for example) the level to which these learning outcomes have been achieved and the manner in which students are being prepared to be successful in the aviation industry.

How will this changing landscape in specialized accreditation affect the perceived value of AABI accreditation and the number of collegiate aviation programs accredited by AABI? Obviously, this is an answer this research effort did not attempt to answer. However, based on discussions the author has had in the past with collegiate aviation program administrators, and comments collected from the individuals in this research effort and Prather (2006b), more programs will be interested in pursuing AABI accreditation due mainly to the greater degree of flexibility the new AABI criteria offer. For instance, programs pursuing AABI accreditation under the former content-based standards were required to include a Calculus course within their aviation program degree requirements. In speaking with program administrators, at least two programs had not pursued AABI accreditation in the past because of this single requirement. In essence, they would have been forced to revise their general education requirements to include the Calculus requirement. However, under the new AABI criteria (AABI, 2007, p. 14), programs must only ensure “a combination of college level mathematics and basic sciences appropriate to the program.” Although it is unknown at this time, it is possible that more programs will pursues AABI accreditation in the future solely

because of the flexibility offered in the new outcomes-based criteria.

Aviation Accreditation Board International

1. AABI should explore the intrinsic merits of accreditation to truly determine how beneficial AABI accreditation is and the degree to which AABI is fulfilling its original purpose. This recommendation stems from the strongly contrasting views among collegiate aviation programs regarding the benefits of AABI accreditation and the apparent success of non-AABI accredited programs.

Administrators of AABI Accredited Programs

1. Administrators of AABI accredited programs who believe strongly in the benefits of AABI accreditation and desire to see collegiate aviation not only maintain, but improve quality standards, should make a concerted effort to educate administrators of non-AABI accredited programs about the benefits of AABI accreditation.

Administrators of Non-AABI Accredited Programs

1. Administrators of non-AABI accredited programs should examine the new outcomes-based AABI criteria to determine if the flexibility inherent in the new criteria are sufficient to enable their programs to pursue AABI accreditation.

CONCLUSION

Although this paper only presents a partial picture of the results from this nationwide study into the perceived value of specialized accreditation by the Aviation Accreditation Board International, important findings were gathered from administrators of both AABI accredited and non-AABI accredited collegiate aviation programs. In general, it appears that administrators are either pro-AABI or not at all interested in AABI. As one may expect, administrators of AABI accredited programs strongly believe in AABI accreditation and have every intention to maintain their AABI accreditation. On the other hand, administrators of non-AABI accredited programs generally point to the expense and effort necessary to pursue AABI accreditation and the fact that their programs are successful without AABI's assistance. Even so, these findings are at odds with the findings of surveys conducted by the UAA in 1974 and again in 1987 concerning the need for specialized accreditation in collegiate aviation. Although the CAA, and subsequently AABI, was created for the benefit of collegiate aviation programs, it appears that only a minority of programs are actually taking advantage of the benefits of AABI accreditation. In the end, it is up to AABI to further investigate the needs of collegiate aviation programs and better tailor their products and services to meeting these needs, while ensuring excellence in aviation education.

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