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The Use of Industry Advisory Boards in Support of Collegiate Aviation Programs

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Abstract-Research problem: Aviation Accreditation Board International (AABI), the organization that accredits aviation degree programs, requires that programs seeking accreditation work with aviation industry professionals in the development and assessment of their programs. (AABI Accreditation Criteria Manual, February 24, 2023). There is no formal directive regarding how aviation programs and industry partners must work together, however, and no best practices relating to the use of industry advisory boards have been researched for aviation degree programs as they have been in other academic fields. Research questions: (1) How do aviation degree programs incorporate industry feedback? (2) How are industry advisory boards being used in support of aviation degree programs? Literature review: Literature in other fields regarding the use of advisory boards in the development and assessment of academic programs has offered insights into stakeholder benefits and suggested best practices, but research on the use of industry advisory boards in collegiate aviation programs is significantly lacking. Methodology: A survey link was shared with all current UAA and AABI members with the goal of determining how common it is for programs to have an industry advisory board. If the programs reported having an industry advisory board, additional survey questions sought to identify the benefits and challenges of having an industry advisory board, as well as the common characteristics of the boards. Findings: Advisory boards are commonly used to support aviation degree programs. However, there is a wide variation in terms of how they operate. This study offers a beginning framework for learning how industry partners and aviation programs are currently working together and suggests areas of additional needed research in order to identify best practices.

Introduction

In contrast to general studies degrees that prepare graduates for a wide variety of post-graduation opportunities, specialized degree programs tend to focus on preparing graduates for employment opportunities in a particular career field. Aviation degrees are examples of specialized degree options that tend to be career-focused; other examples might include engineering, information systems, business, and technical communication.

Due to this stronger focus on immediate post-graduation employment in a student's chosen career, many specialized programs and schools have found value in collaborating directly with the industry-specific organizations that employ their graduates in the form of an advisory board, advisory committee or other similarly named working group.

These working groups, referred to as advisory boards or industry advisory boards (IAB) throughout this paper, serve to "provide feedback with the goal of enhancing students' academic experience and preparedness for future careers" (Soderlund, 2017, p. 76).

This paper offers a foundational overview of advisory boards within several specialized degree programs, summarizes relevant literature, and identifies two research questions: how do aviation degree programs incorporate industry feedback, and how are industry advisory boards being used in support of aviation degree programs? This paper also explains the methodology used in administering a survey, discusses survey results, and offers suggestions for continued research in this area.

Literature Review

Selection of articles

In learning more about research relating to the use of advisory boards in collegiate aviation programs, peer-reviewed journal articles that included the search terms "aviation" and "advisory boards" were first considered. These search efforts yielded no applicable results, so the search terms "academic," "advisory," and "boards" or "committees" were considered instead. This strategy resulted in a much larger number of resources upon which to base our research. Notably, the lack of research specific to aviation validated a need for research in this area.

In order to focus on the most relevant findings, the scope of the literature review was limited to those studies that looked at the use of advisory boards where the primary and limited purpose was to advise a particular academic program, department, school, or center within a university. Excluded were articles that looked at boards with decision-making authority or boards that had a broader scope of influence, such as at the college or university levels.

The resulting articles appropriately limited the scope of this particular research and informed the survey design.

Background

Industry professionals have influenced academic programs in the form of boards or working groups for decades. Researchers reviewing information systems (IS) programs, for example, report evidence of IS programs working with industry experts as early as the 1960s (Mandviwalla et al. 2015).

An early example of how researchers have examined the use of advisory boards in a more generalized way is a paper that was presented at the annual meeting of the American Association for Adult and Continuing Education, "Using Advisory Boards in Academic Administration" (Silver, 1988). This same author went on to publish a related paper four years later, where they described the benefits of working with advisory boards (1992).

Another article published around that same time appeared in the Journal of Marketing Education, where professors Kress and Wedell promoted the use of advisory groups as a way of "bridging the gap between marketing academicians and marketing practitioners" (1993, p. 13). This article explored the purposes, benefits, and challenges of using advisory boards in support of a particular department or program within a university.

Research that followed focused on how advisory boards were developed to support academic centers and other specialized programs within a university, and since the late 1990s, we find research that focuses on several types of centers and specialized degree programs.

Centers and programs represented in the literature

Academic centers represented in the literature include entrepreneurship centers (Zahra et al., 2011) and learning centers (Craig et al., 2018). Academic programs represented in the literature include actuarial science (Query, 2018), marketing (Andrus & Martin, 2001; Kress & Wedell, 1993), engineering (Coe, 2008), communication (Benigni et al., 2011; Dorazio, 1996; Soderlund et al., 2017; Penrose, 2002), information systems (Watson, 2012; Mandviwalla et al., 2015), and sport management (Lawrence et al., 2018).

While studies have examined the use of advisory boards in several different academic settings, as listed, studies exploring the use of advisory boards to support aviation programs are entirely lacking.

Existing articles in these non-aviation subject areas, however, suggest a number of topics to examine. Topic areas include the purpose of advisory boards and benefits to the programs, benefits that board members receive by being on an advisory board, how to form and operate an advisory board, and how advisory boards are used to meet accreditation standards.

Purpose of advisory boards and benefits to the programs and students

Having an advisory board can bring a number of internal and external benefits related to credibility and prestige. Industry advisory boards help academic programs avoid the critique of being too inwardly focused, too theoretical, or too out of touch with current industry trends. Programs also establish credibility within their own institutions by working with an advisory board because board members serve as knowledgeable, respected external consultants with access to resources and wider professional networks (Maxwell, 1997).

Specific resources provided by advisory boards might include monetary funding in the form of donations to the program or university and the networking connections they have that give them the ability to promote the program within the larger community. These are described by Zahra et al. as actions that are "legitimizing [the program's] operations among various external stakeholders" (2011, p. 115).

Additional research discussing benefits focuses on how advisory boards can directly impact the educational experiences of students by providing feedback on curriculum development and program review, assisting with student recruitment and retention, and providing students with opportunities to work with professionals in their field (Mandviwalla, 2015; Dorazio, 1996).

Dorazio's research provides even more specific examples by discussing how board members can suggest case studies or projects for classroom use, they can serve as student mentors or evaluators in capstone courses, and they might be used to conduct mock interviews and offer resume critiques. Then, as students near graduation, advisory board members can be instrumental in terms of job placement and internship opportunities (1996).

In addition to the research highlighting the benefits that advisory boards bring to programs and students, a number of articles also point out the ways that board members benefit from serving on advisory boards.

Benefits to the board members

Members of boards with decision-making authority are frequently compensated for their work. Advisory board members, however, generally are not, so some research explores why advisory board members choose to serve voluntarily. Motivations cited in the literature list intrinsic benefits such as a "sense of duty, contribution to the education and learning of others, and community responsibility" (Zahra et al. 116).

Dorazio's work also cites intrinsic satisfaction as a motivating factor and notes that board members often enjoy learning from each other. Their service on a board also promotes their own company, allows them to expand their own professional network, and the work is considered valuable volunteer work or community service (1996, p. 102).

Articles that address the logistics of forming and operating an advisory board can be instructive for programs that want to maximize the benefits that advisory boards can provide.

How to form and operate a board

Operational logistics described in the literature include how to set up an advisory board, how and how often to communicate with board members, and the differences between engaged and ceremonial boards (Zahra et al., 2011).

Additional articles suggest how to define board missions and objectives, how to recruit and select board members, how to manage advisory boards, and describe the importance of board members having a "diversity of thought and experience" (Mandviwalla et al. 1996, p. 28). Others suggest ways to handle the removal of board members, suggest roles of administrators and alumni on the board, and summarize additional best practices (Penrose, 2002).

Presumably, many suggestions about how to form and operate advisory boards in other academic programs would be applicable to aviation programs as well, but without research and evidence, that assertion would be made without validating evidence.

As programs decide how to formulate their own advisory board, they should be aware that while some articles discuss the use of alumni as ideal board members (Penrose, 2002), other research suggests that non-alumni members can be just as engaged and beneficial to a program as alumni members are (Nagai & Nehls, 2014).

How advisory boards are used to meet certification and accreditation standards

An added motivation for academic programs or schools to work with industry advisory boards is meeting accreditation and certification standards.

Learning center certification standards

University learning centers seeking certification through the National College Learning Center Association (NCLCA) must utilize an advisory board and describe how the board is used (Learning Center of Excellence Application, 2018). The importance of advisory boards in support of learning centers is described in Craig's learning center research (2018).

Business education accreditation standards

There are several ways business schools can use advisory boards to meet Association to Advance Collegiate Schools of Business (AACSB) accreditation standards, which are described in the 2020 Business Accreditation Standards document provided on the AACSB website. Throughout the published standards, for example, there are multiple directives that describe the need for external stakeholder input, namely, in developing a strategic plan, as described in standard 1.1 (p. 23); in monitoring its progress towards meeting goals, as described in standard 1.2 (p. 23); and in reviewing assurance of learning processes, as described in standard 5.1 (p. 46).

Additionally, schools seeking AACSB accreditation must demonstrate they are collaborating with "a wide variety of external stakeholders...[and] that informs...theory, policy, and/or practice of business," and systems must be in place to support external stakeholder

engagement in a way that enhances the school's reputation, as described in standard 8.2 (pp. 56-7).

AACSB also includes standards to ensure that business schools are contributing positively to society in ways that are supported by external stakeholders "through [their] core activities," as described in standard 9.1 (p. 62).

Engineering education accreditation standards

Engineering is another specialized program that has recognized the importance of advisory boards for at least twenty years. Proceedings from an engineering education conference in 2001 noted that with the Accreditation Board for Engineering and Technology's (ABET's) shift to outcomes-based assessment at that time, industry advisory boards could do much more than simply ensure that programs were keeping up with industry trends; they could also be used to directly support the accreditation process (Schuyler et al., 2001).

ABET standards that were met, at least in part, through the use of the advisory boards included providing evidence that students were being effectively advised and monitored and providing evidence that the curriculum was being evaluated on a regular basis (Schuyler et al., 2001).

More recently, the use of advisory boards in ABET-accredited programs is now mandated. Engineering technology programs seeking ABET accreditation must use an "advisory committee" as part of the curriculum review process, as outlined in criterion 5 (ABET criteria manual, 2021).

Aviation education accreditation standards

The Aviation Accreditation Board International (AABI) also recognizes the importance of academic and industry collaborations, as expressed in its accreditation standards.

Current standards for "relations with industry" are outlined in the 2023 AABI Criteria Manual for associate degree programs (Criteria 2.9), baccalaureate degree programs (Criteria 3.9), and graduate degree programs (Criteria 4.9).

Similar to standards expressed by other specialized accrediting agencies, aviation programs seeking accreditation through AABI must show "evidence of a relationship between the aviation program and... practicing professionals in the industry" (pp. 13, 23-24, 34).

Additional program-specific criteria related to industry relations are described in expectations that apply to aviation management degrees and aviation maintenance degrees (pp. 37-38); aviation electronics (pp. 38-39); aviation studies (p. 39); flight education (p. 40); aviation safety science and air traffic control (pp. 41-42); and unmanned (sic) aircraft systems (pp. 43-44).

Unlike ABET standards that require an advisory committee, AABI standards do not. In order to meet the "maintain relations with industry" requirement, though, an unknown number of

AABI-accredited institutions have elected to utilize an industry advisory board to help them fulfill many of these industry relations requirements.

Commonplace but under researched

As evidenced by the survey results described in this article, all respondents reported that their aviation program has an industry advisory board. Even though aviation advisory boards are common, they have not been well researched.

A similar observation was made by learning center researchers Zahra et al. (2011), who describe learning center advisory boards as being "…ubiquitous…, [yet] we do not know much about the role of academic advisory boards in promoting the teaching and learning mission of business schools" (114).

Based on this literature review, the same statement could be made about collegiate aviation programs. As common as they appear to be, there is much to learn about how they operate, how they are structured, and how they most effectively contribute to successful program outcomes.

Methodology

This exploratory study's purpose, then, was to determine how faculty and program directors perceive how their aviation program utilizes industry feedback and, if they have an advisory board, how it operates. A survey was determined to be the best way to collect this information.

Survey design and data collection

This research utilized a qualitative research approach to determine the faculty's perception of their industry advisory boards (IAB). Qualitative studies support answering more open-ended questions and are most appropriate in exploratory case studies (Creswell & Poth, 2018; Yin, 2018). Additionally, an article from Soderlund et al. (2017) that researched technical communication programs was influential in the survey design. Additional questions were provided for faculty who work within programs without advisory boards, though no responses indicated that was the case.

This exploratory case study will support and improve the reliability of these questions through transferability and dependability as described as key aspects by Yin (2018). Upon completing the data collection, as described next, the validity of the data was ensured through bracketing. Once the data was collected, each researcher evaluated, coded, and found themes of the data independently before meeting together to find overlap. Researchers focused first on the Likert scale type questions to find themes, then the open-ended questions, and then combined both to overarching themes of the data. By asking similar types of questions in different manners, this serves as triangulation (Yin, 2018).

In administering the survey, an informational message with the survey link explained the purpose of the survey, assured participants that the survey was anonymous and voluntary, and noted that the ideal survey participant would be anyone who had an awareness of "how your aviation program works with industry professionals."

Not knowing the extent to which aviation programs work with advisory boards, the first survey question asked how the aviation degree program stays apprised of current events and issues in the aviation industry. An answer that indicated they *did not* have an advisory board would take the respondents to questions that asked why they did not have an advisory board, how they otherwise receive industry feedback, and if they would be interested in receiving best practices guidance in terms of developing an industry advisory board.

If the answer to the first survey question indicated that the program *did* have an advisory board, additional multiple-choice survey questions asked how long it had been in existence, how membership on the board is determined, details about the roles and demographics of board members, how board members are on-boarded, the main purpose of the advisory board, the extent to which board members interact with students, the size of the board, how often the board meets, and whether the meetings take place in person, virtually, or a combination of the two.

Additional open-ended questions followed, asking how board feedback is shared, whether or not program or curriculum changes have been made as a result of board recommendations, what are the benefits and challenges of having a board, what advice they would give others who want to start an advisory board, what strategies have been most successful in sustaining productive working relationships with board members, and how satisfied the respondent was with the advisory board and how it functions.

In determining how to administer the survey, we initially felt as though limiting one response from each institution would be ideal. That would prevent a program from submitting multiple responses and skewing the results. Also considered was that respondents from the same program might have answers that contradicted each other. One option considered was to accept only the first respondent's answer, but the decision was made to accept all responses. Inconsistent answers might provide additional and potentially useful information. Ultimately, there were no restrictions placed on how many responses could be received from the same degree program.

In order to reach as many collegiate aviation program representatives as possible, the survey was distributed via email to all University Aviation Association (UAA) and Aviation Accreditation Board International (AABI) members. Additionally, both researchers posted the survey link to their LinkedIn feeds. The survey remained open for six weeks.

Results & Discussion

A total of 31 surveys were submitted; 12 were incomplete, and 19 were complete. The 19 completed survey responses came from 19 unique institutions, and all the respondents indicated they had an advisory board-type group.

Note: Because all respondents indicated they had an advisory board, that might indicate that programs without one declined to participate in the survey, suggesting a potential flaw in how it was administered. Alternatively, the use of advisory boards in aviation programs may be even more pervasive than the researchers considered. Either case suggests opportunities for further research.

Names of the advisory groups

In addition to the "advisory board," other names used for the working groups included industry advisory committee, program advisory committee (PAC), workforce council, and aviation partnership council. As the survey results are discussed in this section, all of these groups will be referred to as an IAB for Industry Advisory Board.

Programs represented

Respondents indicated they represented aviation degree programs that included flight, maintenance, and aviation management, with some respondents indicating they represented more than one program. Seventy-four percent of the respondents indicated that their programs were accredited by AABI.

History and composition of the IAB

When asked how long their IAB had been in existence. Over 60% stated that it has been over ten years, while just over 20% stated that their IAB is between five and ten years old, and 15% were between one and five years old. No respondents indicated that their IAB was less than a year old. The general makeup of the board members was also requested. All IABs included working professionals in the aviation industry; almost 90% of them included graduates of their program, and just over 70% included retired aviation industry professionals. Additionally, 31% of IABs include program faculty, and 26% include program staff. No respondents indicated that current students serve on their IAB.

Figure 1

How long the Industry Advisory Board has been in existence
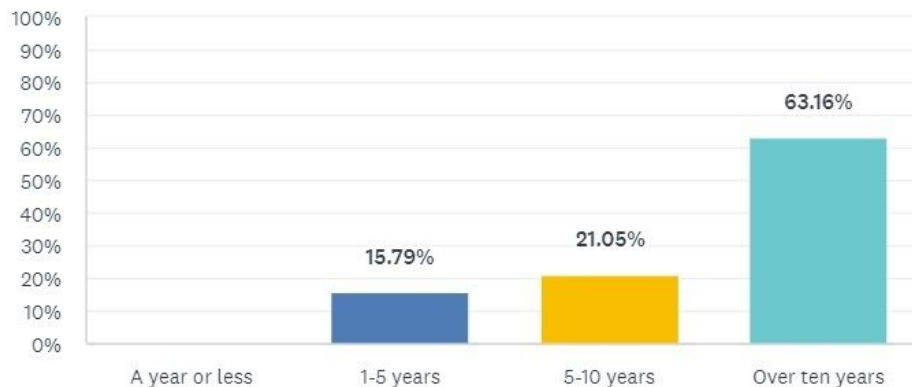
Industry representation and other membership requirements

In all cases, IAB members are selected based on ensuring that a variety of industry specialties are represented. The majority of respondents stated that industry representation is a key component of the IAB makeup. One respondent also explained that "they also need to be supportive of our programs and faculty." When requested to provide information regarding the qualifications or requirements of board members, several respondents indicated that a portion of members are alumni, with up to 50% reporting that was a requirement. Only one respondent indicated specific requirements, including the number of years of industry experience required (seven) and the education background requirement (undergraduate degree). Outside of a general goal to have a variety of industry representation, respondents of this survey did not report more formal requirements of board members.

Onboarding and diversity

Survey responses indicated that IABs did not have a structured onboarding process for new members. Survey respondents also reported no demographic considerations when selecting IAB members. However, improving diversity was mentioned by 26% of the respondents when they were asked what they would like to see change regarding the IAB at their institution.

Size of the IAB

The size of IABs can vary from institution to institution. However, nearly 60% of the respondents stated their IABs were between 10 and 20 individuals. Slightly over 30% have less than 10 members, and about 10% have more than 30 members. Most respondents indicate that keeping the board smaller, especially initially, is a key to success. Unfortunately, there was no explanation provided as to why they felt this was desired. This would be something to explore in future research.

Figure 2

Size of Industry Advisory Board
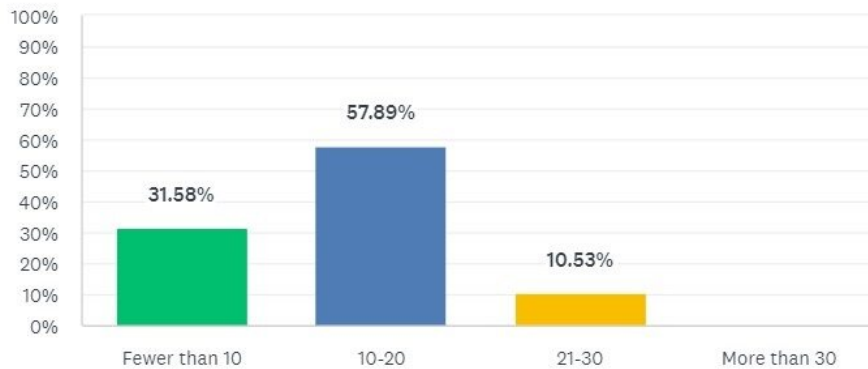
Frequency of meetings and meeting format

Almost 80% of IAB meetings take place one or two times per year, and the remaining 20% meet three to four times a year. No respondents indicated the IAB meets more often than four times per year, nor did they respond that the IAB only meets as needed. The most common meeting format (63%) is a mixture of in-person and virtual. Always meeting in person or always meeting virtually were much less common at 21% and 16%, respectively.

Figure 3

How often the Industry Advisory Board meets
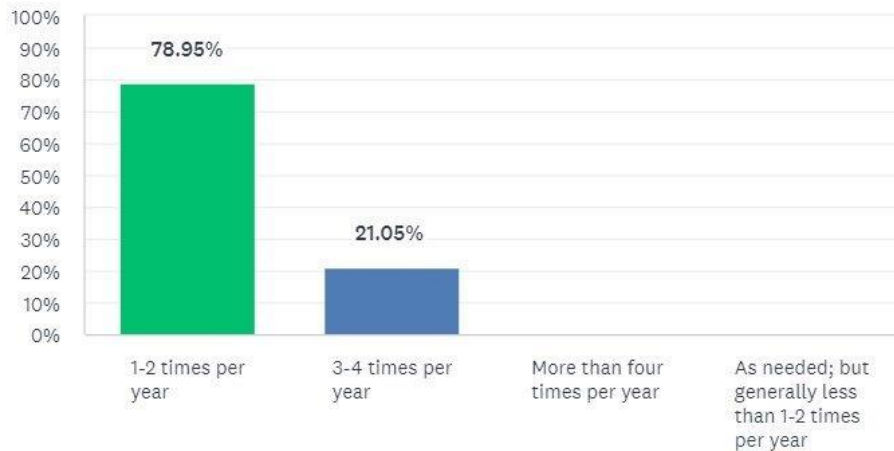
Purposes and benefits of an IAB

Almost 90% of respondents expressed satisfaction with having an IAB, with statements expressing that having an IAB is "one of the best things we've done" and "the people are wonderful." The top three main purposes of the IAB included networking opportunities (95%), curriculum development (79%), and internship or employment opportunities (74%). Respondents stated that the curriculum was improved by "staying connected with industry trends" and "learning how to mirror curriculum with industry best practices." One respondent combined the importance of curriculum management with financial benefits by stating that their IAB helped keep "the curriculum current, [which] provides new opportunities for our students and increases the potential for scholarships and other funding sources." These sentiments were echoed by several respondents, as well as addressing the fact that the aviation industry has "developing needs" and that having a healthy relationship with industry partners helps ensure programs are aware of the need for change.

Additional responses included scholarships (32%), resource planning (26%), and financial or budgeting factors (11%). Almost all respondents indicated that learning about current industry perspectives was a primary benefit of having an IAB, and they also found a benefit in hearing about future trends and how industry trends could impact the curriculum. One respondent stated that "[h]aving current industry professionals to guide how we run our academic program" was a great benefit to their degree program.

Tangible influence on program and curriculum

Based on these survey responses, IABs that support aviation programs have direct impacts on program changes and/or curriculum development. A large majority of respondents (84%) confirmed that their IAB influenced the program and/or curriculum.

Interactions with students

For those whose IAB members interacted directly with the students, we asked what that interaction looked like. Two respondents did not complete this question, which led the researchers to believe that their IABs did not interact with students. Additionally, one respondent indicated they were not sure, and another stated that student interaction was minimal unless the interaction was unrelated to the IAB. The remaining 16 respondents listed classroom speakers, career fairs, and mentorship. Fewer than 40% of the responses indicated small group networking events, mock interviews, and feedback on student work. An open-ended response prompted one respondent to share that their IAB members attend social gatherings, and another stated that their IAB members attend open house events for new students.

Challenges of an IAB

While IABs provide many benefits to aviation programs, maintaining an effective IAB includes a number of challenges. About half of the cited challenges relate to the difficulty in finding good times for everyone to meet and the amount of time it takes to plan and conduct board meetings. Respondents understood that having strong members of the aviation community means that they are busy professionals and schedules are challenging to coordinate, which led to respondents stating that the frequency of meetings is insufficient. While virtual meetings have become more commonplace to accommodate busy schedules, consistent attendance remains a concern, with one respondent stating that "[e]ven using virtual means are difficult because of the number of schedules we are juggling."

Other responses indicated challenges with board members understanding the advisory nature of their roles, keeping the meetings on task, and helping board members understand that changes in university systems take much longer than they do in the industry. Some respondents expressed concern that members of their IAB "think that we are obligated to take their advice and implement it into the curriculum" and do not fully understand the advisory role versus having "oversight of the program." Change sometimes happens slowly in academia, and one respondent expressed that IAB members can be impatient when their suggestions cannot be immediately implemented.

Suggested improvements

Even though about 90% of respondents are happy about having an IAB, approximately 30% indicated that they would like to see IAB improvements made. When asked what they would like to see change regarding their program and board interactions, the statements relating to challenges were reinforced. Respondents indicated that their curriculum needed additional industry perspectives and meeting topics should "include more interaction regarding

curriculum." Additionally, improved communication and structure of the board meetings to be "better organized" were mentioned. Three comments indicated the need for more demographic diversity of the board members.

Sustaining a productive relationship

The most cited strategy to sustain a productive relationship with IAB members was related to communication, such as holding more frequent meetings, holding more in-person meetings, keeping IAB members informed of how their feedback was implemented, or explaining why it was not. Communication regarding the agenda well in advance of the meeting was also listed as a key strategy for a productive relationship, as well as inviting board members to other events on campus beyond the board meetings.

Advice to other programs who want to form an IAB

Respondents were also requested to provide advice to aviation degree programs who were considering developing an advisory board. Many suggestions were shared about how to best form an IAB, and in all cases, forming an IAB was considered to be a good idea despite the challenges. Initial suggestions suggested in this survey included starting small, finding an "influencer" in the industry or a "champion" of the degree program in order to recruit more board members, focusing on diversity across industry perspectives and university experience, and setting clear goals.

Conclusion & Future Research

The foundational work of this exploratory research appears to confirm the pervasiveness of IABs in collegiate aviation programs and validates the many benefits they provide to faculty, staff, and students in terms of curriculum development, program guidance, networking, professional development, and the sharing of industry news. This research also confirms that the use of IABs in other areas of study, namely engineering, information systems, business, and technical communication, can provide us with guidance in terms of how to learn more.

As we learn more through additional research and the further consideration of research from other disciplines, we may be able to suggest how to utilize board expertise most effectively, how to maintain effective communication, how to manage expectations, and how to find solutions to common logistical challenges.

Additional research directedly related to this initial article should include a multi-case study review, research validating the pervasiveness of IABs in collegiate aviation, and research that focuses on the perspectives of IAB members. In order to draw more accurate conclusions and overcome the limitations of having such a low response rate in this phase of research, it will be important to find ways to increase the sample sizes in our future research. The results of the planned research are expected to provide the additional information needed to allow for the creation of a comprehensive best practices guide that collegiate aviation programs could use in establishing and working with industry advisory boards for the benefit of their programs.

References

Accreditation Board for Engineering and Technology Engineering Technology Accreditation Commission Criteria for Accrediting Engineering Technology Programs. (2021, October 31).https://www.abet.org/wp-content/uploads/2022/01/2022-23-ETAC-Criteria.pdf

Association to Advance Collegiate Schools of Business 2020 Guiding Principles and Standards for Business Accreditation. (2023, July 1). https://www.aacsb.edu/-/media/documents/accreditation/2020-aacsb-business-accreditation-standards-june-2023.pdf?rev=c19884b1643f4f37851b0d3e342ec6d7&hash=981B7C7B17A68FC40F715BAAF907B663

Andrus, D.M., and Martin, D. (2001). The development and management of a departmental marketing advisory council. Journal of Marketing Education *23*(3), 216-227.

Aviation Accreditation Board International Accreditation Criteria Manual, Form 201. (2023, February 24). https://www.aabi.aero/wp-content/uploads/2023/03/AABI-201-Accreditation-Criteria-Manual-Rev.-2-24-23-.pdf

Benigni, V., Ferguson, D., & McGee, B. (2011). Establishing a "renown-gown" relationship: The role of advisory boards in communication programs. Journalism & Mass Communication Educator, 54-68.

Coe, J. (2008). Engineering advisory boards: Passive or proactive? Journal of Professional Issues in Engineering Education and Practice, *134*(1), 7-10. https://doi.org/10.1061/(ASCE)1052-3928(2008)134:1(7)

Courtney, W., Hartley, B, Rosswurm, M., LeBlanc, L., & Lund, C. (2021). Establishing and leveraging the expertise of advisory boards. Behavior Analysis in Practice, *14*, 253-263. https://doi.org/10.1007/s40617-020-00503-1

Craig, A., Richardson, E., & Harris, J. (2018). Learning center advisory boards: Results of an online exploratory survey. The Learning Assistance Review, *23*(2), 87-114.

Creswell, J.W., Poth, C.N. (2018) Qualitative Inquiry & Research Design: Choosing Among Five Approaches, Fourth Edition, Sage Publications.

Dorazio, P. (1996). Professional Advisory Boards: Fostering Communication and Collaboration Between Academe and Industry. Business Communication Quarterly, *59*(3), 98–104. https://doi.org/10.1177/108056999605900315

Kilcrease, K.M. (2010). Faculty perceptions of business advisory boards: The challenge for effective communication. Journal of Education for Business, *84*(2), 78-83.

Kress, G. J., & Wedell, A. J. (1993). Departmental Advisory Councils: Bridging the Gap between Marketing Academicians and Marketing Practitioners. Journal of Marketing Education, *15*(2), 13–20. https://doi.org/10.1177/027347539301500203

Lawrence, H. J., Strode, J., Baker, R. E., et al. (2018). Sports management program advisory boards: The advantages of outside assistance. Journal of Contemporary Athletics, *12*(4), 253-270.

Madviwalla, M., Fadem, B., Goul, M., George, J.F., Hale, D.P., (2015). Achieving academic-industry collaboration with departmental advisory boards. MIS Quarterly Executive, *14*(1), 17-37.

National College Learning Center Association Learning Centers of Excellence Application Checklist (2019). https://nclca.wildapricot.org/resources/Documents/LCs%20Of%20Excellence/LC_Certification_Checklist%202020.pdf

Nagai, J., Nehls, K. (2014). Non-alumni advisory board volunteers. Innovative Higher Education *39*, 3–16 (2014). https://doi.org/10.1007/s10755-013-9257-0

Penrose, J. M. (2002). Strengthen your business communication program with an alumni advisory board. Business and Professional Communication Quarterly, *65*(4), 73–84. doi:10.1177/108056990206500407

Query, J. T. (2018) Actuarial science advisory boards: A survey of current and best practices, Journal of Education for Business, *93*(8), 403-411.

Schuyler, P.R, Canistraro, H., & Scotto, V.A. (2001). Linking industry & academia: Effective usage of industrial advisory boards. Proceedings of the 2001 American Society for Engineering Education Annual Conference & Exposition. Session 3247.

Silver, G. (1988). Paper presented at the Annual Meeting of the American Association for Adult and Continuing Education (Tulsa, OK, October 31-November 5, 1988).

Silver, G. (1992). Advisory boards: Academic partnerships that work. ERIC Number: ED343626

Soderlund, L., Spartz, J., & Weber, R. (2017). Taken under advisement: Perspectives on advisory boards from across technical communication. IEEE Transactions on Professional Communication, *60*(1), 76-96.

Watson, H.J. (2012). Reflections from a senior scholar: Creating and sustaining a MIS advisory board. The DATABASE for Advances in Information Systems, *43*(4), 8-11.

Yin, R.K. (2018) Case Study Research and Applications, Sixth Edition, Sage Publications.

Zahra, S., Newey, L., & Shaver, J. (2011). Academic advisory boards' contributions to education and learning: Lessons from entrepreneurship centers. *Academy of Management Learning,* *10*(1), 113-129.

Appendix A

Survey Questions

For the purposes of this survey, an Industry Advisory Board (IAB) refers to any formal grouping of aviation industry professionals whose purpose is to serve the university for the benefit of the aviation department, program, or school. Often, these groups have different names, such as Advisory Committee, Industry Workgroup, and the like.

1. How does your aviation degree program learn about current events and issues in the aviation industry? (Select all that apply)
   a. Faculty or staff members have current industry experience through their work or consulting efforts.
   b. Faculty or staff members regularly attend off-site or remote professional conferences or meetings that provide opportunities to interact with industry representatives.
   c. Faculty or staff members regularly participate in on-site or local professional development meetings or workshops that provide opportunities to interact with industry representatives.
   d. Faculty or staff members read about current industry topics and events via print or online publications such as industry newsletters or press releases.
   e. Faculty or staff members receive regular feedback and information from an Industry Advisory Board or similar entity.
   f. Other
2. Open-Ended: Please elaborate on any of the above responses.

3. Do you have an IAB?
   a. Yes
   b. No

If yes, IAB Questions:
4. Knowing that your program utilizes an IAB or similar entity, what is it called within your organization?
   a. Industry Advisory Board
   b. Industry Advisory Committee
   c. Other: ____
5. As an estimate, how long has your aviation degree program had an IAB?
   a. A year or less
   b. 1-5 years
   c. 5-10 years
   d. Over ten years

6. Open-Ended: How purposeful is your board member selection? Are there key areas that you attempt to ensure are well represented, including but not limited to gender, race, levels of education, and experience within the aviation industry (pilots, management, operations, maintenance, etc.)?
7. What is the make-up of your IAB? (Select all that apply)
    a. Alumni
    b. Work in Aviation Industry
    c. Has previous community and professional ties with the board administrator
    d. Faculty
    e. Students
    f. Staff
    g. Works for a company partnered with the university in a cross-campus program
    h. Other: _____
8. Open-Ended: What is your process to bring in new board members? Are there specific requirements for them to join (experience, qualifications, financial, etc.)?
9. What would you say is the main purpose of your IAB? (Please select up to 3 purposes)
    a. Financial/Budget
    b. Curriculum development
    c. Resource Planning
    d. Internship/Employment Opportunities
    e. Scholarships for students or graduates
    f. Networking Opportunities
    g. Speaker Series
    h. Other: _____
10. If your IAB members interact directly with students, how so?
    a. Mentorship
    b. Providing feedback on student work
    c. Small group networking events
    d. Career Fairs
    e. Mock Interviews
    f. Other: _____
11. How many members serve on your IAB on average?
    a. Fewer than 10
    b. 10-20
    c. 21-30
    d. More than 30
12. How often does the board meet?
    a. 1-2 times per year
    b. 3-4 times per year
    c. More than four times per year

        d. As needed
13. How do they meet?
        a. Always in person
        b. Always virtually
        c. A mixture of in-person and virtually
14. Open-Ended: How does the feedback from the board get shared, and to whom?
15. Open-Ended: Have you made changes to your program or curriculum as a direct result of IAB?
16. Open-Ended: What would you say are the benefits of having an IAB?
17. Open-Ended: What would you say are the challenges of having an IAB?
18. Open-Ended: What advice would you give to an aviation degree program that is considering starting an advisory board?
19. Open-Ended: How satisfied are you with your IAB and its function?
20. Open-Ended: What strategies, if any, have you found successful in sustaining a productive relationship with advisory board members?
21. Open-Ended: Would you like to see something regarding your program and board's interactions change?

    If No, Non-IAB Questions:
22. If your aviation degree program does not have an IAB, could you elaborate as to why not?
        a. Not required
        b. Too complicated
        c. The program is too small
        d. No one is able to take the lead
        e. Too much faculty turnover
        f. Unknown
        g. Other (explain)
23. Open-Ended: Who do you solicit feedback from with regard to industry information in order to guide your degree program?
24. Open-Ended: How do you otherwise ensure that you are incorporating industry feedback into your program?
25. Open-Ended: Can you provide an example where you sought out industry feedback in order to guide your degree program and what was the result?
26. Would a best practice guide for aviation degree program IABs positively influence your decision to develop an IAB?
        a. Yes
        b. No