21st Century Aviation Safety Requirements Necessitates a Practicum in Postsecondary Educational Safety Programs.

("Post-Secondary Academic Safety Programs and the Need for a Practicum in Training")

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Problem

- An overreliance on the teaching of theory in academic safety programs has resulted in a lack of reliably trained and prepared safety professionals in the aviation industry.

- The intent of these programs is to meet the industry's needs and requirements pertaining to the safe movement of aircraft, ground equipment, and people.

Purpose

- The purpose of this qualitative research was to gain insight regarding if the current needs and requirements of the aviation/aerospace industry are being met through a case study analysis.

- This study was designed to provide information on skill and knowledge gaps that can lead to future research and help ensure that graduates continue to meet and exceed current and future industry needs, even in the event of reduced personnel levels.

Theoretical Framework

- Learning by doing ensures that each member of the educational process takes ownership in adapting to change.

- **Constructivism** is the theory that supports the idea of the importance of experience in education.

- Constructivism directly involves the student, the knowledge gained, and the connection between the student and the knowledge that is gained.

Research Question

- The research question driving this study was:

  - What are the perceptions of industry safety professionals in aircraft and airport safety management on the academic preparedness of safety professionals in the United States?

  - Answers to this basic question revealed the categories that have been grouped to form the discussion themes

Interviews

Interview Process

- **Interviews**:

  Sent 67 Interview Participation Requests via LinkedIn's individual professional contacts lists.

  Received 55 acceptance replies.

  Interviewed the 55 professionals, scheduling interviews within their busy schedules.

  A review and separation of information was conducted from 67 transcribed pages of interview information

- **Interview Questions:**

  1. What current aviation/aerospace industry skills and knowledge are needed by graduates from post-secondary academic safety programs?

  2. What current specialized qualifications or certifications are needed for aviation safety professionals?

  3. What knowledge and skills are directly related to Federal requirements and programs?
     - Should this knowledge be required for the preparation of graduates?

  4. What level of understanding of future Federal requirements and programs will be needed by graduates (within the next five years)?

  5. What (if any) industry certifications would be best served for graduates of post-secondary academic safety programs to attain prior to graduation?

Participant Experience, (Listed as an example of the expertise based upon the first 15 interviews conducted.)

Pseudonym	Safety Management Role	Years of experience
Alan Scott	Aviation Safety Chairman	>30
Hal Jordan	Airport Director	>15
Guy Gardner	Airline Captain	>20
John Stewart	Air Traffic Controller	>30
Kyle Rayner	Response Coordinator	>10
Simon Baz	Flight Instructor	>5
Daniel Young	Safety Analyst	>25
Abin Sur	Airport Administrator	>40
Anya Savenlovich	Safety Course Developer	>25
Waverly Sayre	Safety Manager	>5
Jong Li	Vice President in Charge of Safety	>25
Barry Allen	Airport Training Coordinator	>25
Lia Nelson	Safety Company President	>15
Wally West	Safety Inspector	>15
Jay Garrick	Systems Engineer	>25

Interview Themes

- After the completion of the interviews and reviewing the information the most recognizable themes, as identified by the interview participants, were:

  - Safety Management System (SMS) – 85%

  - Human Factors – 80%

  - Communication – 79%

  - Understanding Culture – 75%

  - Practical Program Knowledge – 72%

Safety Management System (SMS)

- The most identifiable theme throughout the interview information was the need to have a practical knowledge of the safety management system.

- The requirements for an SMS to be implemented policy within organizations and the aviation and aerospace industry, is expected to increase over the next 5-years.

- This only adds to the importance of a practical knowledge for implementation.

Human Factors

- When examining aviation safety most participants addressed the need for a better understanding of the connection that people have within the aviation and aerospace industry.

- Despite advancements in technology, humans are still accountable for ensuring the success or failure, as well as the safety of the aviation and aerospace industry.

- Because of that fact safety personnel need to be knowledgeable, flexible, and efficient while performing safety management.

Communication

- A consistent theme among the interviews, most participants felt a need to improve upon the communication skills of academic program graduates.

- To assist decision makers in arriving at the best possible decision from many possible alternatives, accurate information is needed.

- This is the important aspect of communication, and requires the attention of safety management so as to help establish and implement the best methods of lessening communication problems.

Understanding Culture

- Communication is a strong piece to effective management of safety, but culture can have a large impact on the communication piece of management.

- Culture may be identified as a national culture, regulatory culture, or even that of an organizational culture.

Practical Program Knowledge

- Participants were overwhelmingly in support of more practical knowledge being taught, instead of the theoretical knowledge that most college programs seem to endorse.

- "Today we need graduates ready to work; we're not seeing it though. It's still the old standby of theory and no practicality."

- "looking back at my courses that I was taught based on what the teacher thought was important and not necessarily what I needed to know to work and what the industry thought was important. In other words, the academic program wasn't so in touch with the realities of the industry."

- There seems to be a divide with what the aviation and aerospace industry state they need and require, and what the postsecondary academic institutions are offering.

Conclusions

- Research from this study suggests that the perceptions of industry safety professionals, on the academic training of safety professionals in the United States, is lacking.

- The interview information indicated that graduates are not adequately prepared for a practical approach to safety management, and that job skills are learned after a graduate is hired, and not through a postsecondary academic program.

- The need for required internships as a way of learning practical job skills became evident during the interview process.

- Industry requirements and organizational purpose were identified in this study as major determinants of a postsecondary academic program's desirability, a lacking of needed courses and experience became evident.

- Overall, professionals that possessed a relevant degree were shown to not have the courses that were identified as being needed by the industry professional, as indicated in the interviews.

- This demonstrates that a well-trained and ready to perform graduate will not be available through a postsecondary program.

- Industry organizations would be better served to look to someone with minimal experience, and at a later date have the employee attend a certificate program.

Recommendations

- The teaching of practical application of knowledge within a postsecondary academic institution, vice purely hypothetical knowledge can lead to a better prepared graduate to serve in the workforce.
- Knowledge obtained from this study may be appropriately assigned to any number of required workforce skills, in any number of industries.

  - For example the training of teachers in the educational field or the training of doctors within the medicine field.

- Knowledge gained from this study also has the potential to help bolster graduates in overcoming what the data from this study suggests is an unpreparedness to serve in safety management.
- Additional research related to the problem and purpose of this study is recommended.

  - One recommendation for future research centers on a mixed methods study that would be designed specifically to measure and compare the use of academically trained safety professionals with those that are serving in safety management roles as second careers.
  - One purpose for the recommended research would be to obtain information that directly compares the performance of a safety manager that was academically trained to that of a safety manager that relied on some aspect of aviation experience, such as being a pilot.
  - The research may assist the aviation and aerospace industry with recognizing the better qualification pathway.

- Through the utilization of information gained from participant interviews, a basis of graduate preparedness could be formed.

- A person could surmise from the information that through a lack of partnership on behalf of the aviation and aerospace industry, and postsecondary academic institutions, that our workforce could be unprepared.

- This could be true if not for possible experience of potential safety managers, along with the existence of certificate programs.

- The existence of certificate programs may in fact be a better pathway towards a well-prepared safety manager currently.

"The aviation safety field is not a field intended for only theoretical knowledge, but instead is one to employ a practicality of knowledge possessed."

- Dr. T. B. Holt, FRAeS, C.M.