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Fall 9-29-2016

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The Problem with Postsecondary Aviation Safety Training, as Voiced by Aviation Industry

Professionals

Presented at the

69th Fall Conference of the University Aviation Association

Omaha, Nebraska, USA

September 29, 2016

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ABSTRACT

This research study explored the observations of aviation industry safety professionals, as they

relate to the availability of a hiring pool of trained and prepared safety professionals from which

to choose. When considering the issues in preparing graduates as career ready, and coupled with

the ever changing nature of the aviation industry, this study was designed to examine

postsecondary academic program graduates' readiness in meeting the needs and requirements of

safety program management within the aviation industry. Fifty-five participants were

purposefully selected for interviews from safety professionals currently working in the aviation

industry, to help examine the needs and requirements of the aviation industry safety programs,

and voice their opinions on the readiness of graduates from postsecondary safety programs to

help meet those requirements. The teaching of primarily theoretical high level information,

instead of a student-centered constructivist approach, by postsecondary academic safety

programs may result in a lack of preparedness of postsecondary graduates to be ready to serve in

the aviation industry. Today's top aviation universities teach curricula associated with flight

training as well as academic courses in the area of aviation safety. The overarching intent of

these programs need to meet the industry's needs and requirements as they pertain to the safe

movement of aircraft, ground equipment, and people.

INTRODUCTION

The teaching of primarily theoretical information, instead of a realistic hands-on approach, by postsecondary academic safety programs has resulted in a lack of preparedness of postsecondary graduates. This has prevented aviation safety managers from having a dependable pool of reliably trained and prepared safety professionals to select from. Today's top aviation universities teach curricula associated with flight training as well as academic courses in the area of aviation safety. 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.

Background

Aviation system technology for safety is designed to reduce hazards, eliminate recurring mishaps, and reduce accident and incident consequences (Fleming, Spencer, Thomas, Leveson, & Wilkinson, 2013). The only way to avoid incidents and accidents from occurring is to accurately detect possible personnel risk areas, such as hazardous material, vehicle movement areas, and airport ground markings. Combining safety-requirements and safety-specific functions and technology within the aviation and aerospace industry, as well as implementing safety-focused training, is required for the air transportation system to achieve its advancing safety goals (Herrera, Nordskag, Myhre, & Halvorsen, 2009). A primary consideration in the design of safety management academic programs is to increase graduate preparation across a vast area of aviation and aerospace topics, which is defined by a safety manager's goals and decision tasks. (Darche & Stam, 2012).

Purpose of the Research

The purpose of this qualitative research was to gain insight regarding the perceptions of industry safety professionals, as to the preparedness of safety program graduates. Participants

were purposefully selected to include 55 safety professionals currently working at airports

(Hatch, 2002; Stake, 2010). Universities need to review and maintain currency regarding current

and future industry employee skill and knowledge needs. Industry experience can assist in

linking those needs to their curriculum and academic safety program outcomes to help ascertain

the readiness of program graduates to meet the employment needs of the industry. Most

institutions currently do not monitor the academic preparedness of graduates entering the safety

field (D. Johnson, personal communication, October 15, 2013). In fact, even though

organizations continue to stress safety, in times of economic downturn, personnel levels in safety

and training may be reduced before operational personnel (D. Johnson, personal communication,

October 15, 2013). This case 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

An appropriate theoretical framework for this study addressed curriculum

implementation and the consistency in preparing students for service within the aviation and

aerospace industry. Takaya (2008), stated that education as an institution presents useful

information and images of useful life, each in a somewhat associated form. But it does not mean

that the educational institution necessarily sets a certain limit upon the information, meanings,

and values that individuals build upon. As will be discussed below, students learn and support

knowledge construction through learning by doing.

Constructivist theory. DuFour, DuFour, Eaker, and Many (2006) stated that learning by

doing—rather than learning by reading, planning, or thinking—helps students develop a deeper,

more profound knowledge and a greater commitment to the learning process. 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 and is a theory of learning and gaining knowledge that evolved from the work of Piaget and Vygotsky (as cited in Liu & Chen, 2010). Piaget and Vygotsky observed student-centered instructional beliefs and concluded that experience is vital in student learning and retention (Bruner, 1997). Constructivism describes how students arrange the foundation of knowledge gained to make sense to them, and how their knowledge and understanding are built from preexisting information.

Piaget views the learner as both a mentally and physically active student engaged in experimentation. The learner constructs knowledge through a process whereby the standard beliefs and understandings are challenged through collaborations with the environment that will require the learner to consequently revise or modify those belief systems to match their experiences (Harlow, Cummings, & Aberaasturi, 2006).

Vygotsky's work is also central in the community version of constructivism. Vygotsky stressed how social interaction affects knowledge creation (Bruner, 1997). The knowledge that students construct is directly linked to the social environment where the knowledge gained was experienced and understood (Liu & Chen, 2010). This concept is proven through the implementation of a practicum during a particular course of study.

Research Question

The overarching research question derived from the lack of reliably trained and prepared safety professionals in the aviation and aerospace industry. Taking into account the possible lack of consistency pertaining to academically trained safety professionals, it is important to gather

information from more experienced safety professionals currently working in the aviation and

aerospace industry. Thus, the research question driving this study follows:

Q1: What are the perceptions of safety management professionals of the existing

academic training of students in safety management programs in the United States?

Significance of the Research

Aviation is closely associated with safety, because of a high rate of incidents or accidents,

but rather because of the ultimate consequences if something goes wrong (Fleming et al., 2013).

Safety managers must understand hazards as well as risks, and safety managers overseeing a

safety program need to be properly trained and career-ready to work within the aviation and

aerospace industry (Herrera et al., 2009). Interviewing professionals serving in safety can

identify relevant commonalities among post-secondary academic safety programs (Barnett,

2008). Discovering how industry safety professionals in aircraft and airport safety management

perceive academic training of safety professionals in the United States may help trainers better

prepare safety program graduates to work in the aviation and aerospace industry.

Aviation Safety and Training

To help identify the differences of the top aviation academic programs, along with the

current needs and requirements of the industry, it helps to understand not only what the needs

and requirements are but also what may be accomplished in training, safety, and management.

Every postsecondary institution has a mandate: to prepare graduates to succeed in the industry of

their choosing (Walker, 2009). Furthermore, postsecondary institutions have a responsibility to

industry through partnering and providing the relevant curriculum pertaining to meeting industry

needs and requirements (Whitehurst & Rantz, 2012). University academic programs, and the

majors that students select, fall within this domain of needing to meet the industry needs and requirements.

Aviation industry professionals are concerned that employees are properly trained, certified, and educated (Denby, 2010). Safety professionals are needed to help ensure programs, policies, and procedures are not only adhered to but developed and understood (Yi, 2012). It is not uncommon during economic downturns in the aviation industry to cut back on training opportunities as well as the personnel that oversee safety management programs (Fiorino, 2010). Personnel who are forced to accept more responsibility and who have still fewer training opportunities, or may not have been initially trained or educated properly for the task at hand, may worsen a given situation (Fiorino, 2010).

Management Through Safety Systems

A safety management system (SMS) is defined as a systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies, and procedures (Yi, 2012). The goal of the safety management approach is to create superior safety performance on organizational projects and to define personnel roles, responsibilities, programs, policies, and procedures to help realize this safety performance goal (Lu, Schreckengast, Ropp, & Dillman, 2011). System safety is the application of both engineering and management principles, thereby joining both science and business techniques to achieve an acceptable level of safety throughout all aspects of an organizational system (Stolzer, Halford, & Goglia, 2011). Achieving this characterization of system safety is the main objective of SMS (Yi, 2012).

A well-constructed SMS can provide an organized, unambiguous, and complete management method for minimizing the risks within an organization (Yi, 2012). The SMS process includes goal setting, planning, documentation, and regular evaluation of performance to

ensure that goals and requirements are being met. In order to bring safety understanding to

management, the Federal Aviation Administration (FAA) is in the process of devising a

comprehensive plan to implement an SMS requirement for the aviation and aerospace industry

(Remawi, Bates, & Dix, 2011). This process will allow aviation and aerospace organization

managers to take into account safety and manage through the empowerment of personnel as the

subject matter experts of the organization. SMS encourages safety as part of the decision-

making management process, just like any other aspect of managing an organization (Esler,

2009).

Building an overall safety approach within an organization, in the most efficient manner,

requires an organization to adopt a systems method to safety management (Lu et al., 2011). All

levels of an organization need to become a part of a culture that promotes and practices both

safety and risk reduction mitigation (Stolzer et al., 2011). Safety management is built upon the

principle that there will always be safety hazards and human errors, both of which an

organization should be aware of and work to lesson any harmful effects (Stolzer et al., 2011).

SMS creates a process to improve communication about these risks and thereby enabling safety

professionals to take action to minimize them. This method can consequently improve an

organization's overall level of safety (Lu et al., 2011).

Implementing a well-organized and relevant SMS program may not come naturally, and

at the present time, there are only two developmental processes (Stolzer et al., 2011). The first is

to contract out to a company that will develop a tailored safety management system for an

organization. The problem with this approach is the contracting company may not fully

understand the organization, and, if there are later updates or revisions required, the organization

may not know how to accomplish them (Fiorino, 2010). This could cause future reliance on a

contractor. The second approach is to have trained career-ready personnel in place that can

devise an SMS within the organization itself. This ensures the company not only understands the

process, but it effectively keeps the costs of development and updates manageable (Stolzer et al.,

2011).

The international governing body for air transportation, International Civil Aviation

Organization (ICAO), requires that airports must devise an SMS as a way of guaranteeing safe

operations and eliminating or reducing the likelihood of incidents and/or accidents (Remawi et

al., 2011). An SMS helps create a solid safety culture, which, in the long term, helps the

organization develop a sound business practice (Yi, 2012). The problem with this, however, is a

lack of practitioner inexperience in creating an SMS, causes an organization to outsource and

pay contractors to create this requirement (Remawi et al., 2011).

Effects of Safety Programs on the Aviation/Aerospace Industry

The FAA and Congress have aggressively pursued new rules and laws aimed at creating

the fail-safe airline professional, one who must meet more rigorous training and hiring

requirements (Fiorino, 2010). One way the industry looks to keep costs down is by hiring a

better-trained and career-ready professional from academic institutions (Yi, 2012). Proposed

rules would enhance initial and recurrent training standards for those hired in airport and airline

operations, which points to a higher standard of training for those graduating from academic

institutions with the hope of working in the safety field (Fiorino, 2010). Safety is critical to the

success of the aviation and aerospace industry, and, as air travel continues to develop globally

and link more people and places, the methods for maintaining and overseeing aviation safety will

continue to be a global concern (Leib & Lu, 2013).

For an airline, and to some extent for an airport to prosper financially, safety is a prime concern. The safety record of a company instills public confidence, and yet it will always be a risk-filled profession (Lu et al., 2011). This safety record can also be looked at as the airline's reputation. For a department that has such importance to impact both company confidence and reputation, it is imperative to hire the most career-ready graduates from the top academic programs in safety (Fiorino, 2010).

Traveling on an aircraft implies a certain amount of risk taking. As is true for other services, buying an airplane ticket implies various categories of risk, such as financial risk, social risk, and psychological risk. Unlike most other services, air travel also exposes passengers to physical risk. Even though the airline industry claims that safety is its number one priority, the occurrence of accidents cannot be eliminated completely, which passengers realize (Ringle, Sarstedt, & Zimmermann, 2011).

The consumer may even believe air travel as more dangerous than is justified from a detached point of view because individuals generally judge the risk associated with low-probability events. Furthermore, airline disasters are extensively covered by the media, which contributes to public awareness of such accidents. Aviation system processes for safety are aimed at managing risk, minimizing the hazards, eliminating recurring accidents, and mitigating accident and incident consequences (Davey & Ham, 2010). For the public to have loyalty to an airline or even an airport the passenger must have a sense of safety .

Although a topic of interest, little has been done to address pilot fatigue, crew rest requirements, and federal regulations (Whealan-George, 2013). The traveling public may believe that changes are not being made, or their safety is not a priority. Safety perceptions may go the same route as security perceptions; that is, both processes are all for show and not

relevant. The negative impact can cause the number of travelers to decrease, which in turn cause

prices to increase (Fiorino, 2010).

Normally, airlines try to establish a pleasant image of flying for air travelers, with a

desire to make them feel comfortable and have them for return business. Airlines do not wish to

cause or increase passenger anxiety by highlighting emergencies, or show airline passengers

ways to prepare themselves for such statistically possible emergencies (Byers, 2012).

Additionally, airlines tend to overemphasize the service role of their cabin crew, which may

cause some passengers to ignore the cabin crew's safety role and in-flight safety demonstrations

and build a perception of wait-staff instead of aviation professionals (Chai & Tan, 2009). One

can understand why aviation marketing is geared to comfort, fees, and baggage and not overtly

to the overall safety record or mishap-free flying an airline has accumulated, because the

passenger expects safety but looks to pay for comfort.

Research Method and Design

This research used a qualitative design through interviews of aviation industry safety

professionals to examine the perceptions of safety professionals on the preparedness of

postsecondary program graduates. Case study research offers a broad array of prospective

philosophical positions that underlie the qualitative research design and approaches for its design

(Stake, 2010). Those broad positions explain a basic belief system or choices, such as single

case study and safety personnel experience.

Stake (2010) defined open-ended interviews as interviews that maintain flexibility and

rapport with the interviewees by active listening. Non-deceptive, non-coercive, open interview

questions were used so that interviewees were given more opportunity to speak freely and

perhaps more candidly and honestly, while explaining their unique perspectives on issues at hand

(Hatch, 2002). Interviews were an important and justified means of collecting data in this study

because candid and honest answers illuminate leadership dispositions and philosophies on

promoting, cultivating, and encouraging a technological culture (Stake, 2010). Aviation experts

first reviewed the questions to help confirm the validity of the questions.

The same questions were asked of all participants and were designed to draw out

thoughtful and meaningful answers that revealed if graduates are prepared or in need of

improvement in regards to working as aviation safety professionals (Stake, 2010). The questions

were intended to extract information and responses that elicited depth, detail, vividness, nuance,

and richness by creating three kinds of questions: main, follow-up, and probing (Stake, 2010).

This mixture ensured that the responses gave insight into the reasons why initiatives are adopted

and why specific decisions are made.

Population

The population involved in this case study was adult aviation and aerospace safety

professionals. These safety professionals were purposefully selected (Hatch, 2002) based upon

their experience level, training accomplishments, safety management seniority, and their

understanding of the needs and requirements of the aviation industry.

Participant Experience

The safety needs and requirements of the aviation industry are inextricably linked to the

epistemological question, which maintained an objective in relation to the phenomena being

studied (Hatch, 2002). The phenomena being studied subscribed to a relativist construct for

reality; the approach to the epistemological question is, by default, subjectivist. With this

approach, knowledge is viewed as being created through interaction between the researcher and

his or her subjects (Hatch 2002). In other words, the people managing the safety needs and

requirements of the aviation and aerospace industry were interviewed as the subject experts and participants of this study.

Interviews

Interview participation requests were sent to 67 aviation safety professionals, via LinkedIn's individual professional contacts lists. After reviewing the 60 acceptance replies, 55 professionals that could schedule interviews were interviewed. Those who agreed to be interviewed answered questions set forth in a structured, open-ended manner. A review and separation of information was conducted from 78 transcribed pages of interview information, the most relevant of which are presented here.

Table 1

Participants' Experience, (Note: The research method was vetted by IRB, below names are pseudonyms.)

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
Artis Chep	Aviation Safety Chairman	>25
Pak Glif	Airport Administrator	>15
John Wayne	Airline Captain	>20
Patrick Stewart	Air Traffic Controller	>15
James Kirk	Airline Captain	>10

Luke Asile	Flight Instructor	>10
John Atalanta	Safety Analyst	>15
Tony Atey	Airport Administrator	>35
Barro Cruzz	Safety Course Developer	>20
Ben Barda	Safety Manager	>10
Samual Bivvix	Vice President in Charge of Safety	>30
Charlie Vicker	Airport Training Coordinator	>15
Robert Chaselon	Safety Manager	>25
Robert Cherniss	Safety Inspector	>20
Tony Jordan	Aviation Safety Chairman	>15
Bob Smith	Airport Director	>20
Hal Thomas	Safety Manager	>20
Anthony Rizzo	Air Traffic Controller	>15
Harold Roberts	Response Coordinator	>25
Tom Jones	Flight Instructor	>25
Dob Zagil	Safety Analyst	>5
Howard Drig	Safety Manager	>5
Robert Droxelle	Safety Course Developer	>10
Howard Vandor	Safety Manager	>10
Bob Timmons	Vice President in Charge of Safety	>10
Randy Lewis	Airport Training Coordinator	>25
Tony Vincent	Safety Company President	>15
Peter Djukic	Safety Inspector	>15
Matt Matejko	Aviation Safety Chairman	>30
Richard Hawkins	Airport Director	>15
Robert Fulkerson	Airline Captain	>20
Sam Universo	Air Traffic Controller	>30
Tom Umito	Response Coordinator	>5
Waverly Sayre	Air Traffic Controller	>5
Lenard Wisson	Safety Analyst	>15
Timothy Wylxa	Airport Administrator	>40
Anya Savenlovich	Safety Course Developer	>20
Tim Yron	Safety Manager	>5
Jong Li-Xi	Vice President in Charge of Safety	>25
Tony Zale	Airport Training Coordinator	>25
Liam Neeson	Air Traffic Controller	>10

Research Findings

The purpose for conducting this qualitative case study was to gain insight regarding the

current needs and requirements of the aviation industry. The outcome of the study produced

information that explains many of the views held by safety management professionals serving

within the aviation industry. The research question driving this study was: What are the

perceptions of industry safety professionals in aircraft and airport safety management on the

academic training of safety professionals in the United States? Answers to this question revealed

the categories that have been grouped to form the discussion themes. These themes are

presented as discussion categories in both the results and evaluation sections. In the results

section, themes are organized around the research question associated with the study.

Results

This qualitative case study captured the experiences and perspectives of the participants

as they relate to safety management and the needs and requirements of the aviation/aerospace

industry. The interview questions and structure of the study investigated the perceptions of

training effectiveness of the postsecondary graduate.

Interviews. After the completion of the interviews and reviewing the information, the

most recognizable themes, which the interview participants identified, are shown in Table 2.

Table 2

Interview Themes

Safety Management System (SMS)
Practical Program Knowledge

The participants' answers to interview questions revealed the importance of safety managers

having a practical understanding of the themes, listed in Table 2. By the identification of these

themes, and then when reviewing the postsecondary academic programs, relevance of the

academic programs and the meeting of the needs and requirements of the aviation and aerospace

industry were established.

Safety Management System.

The need for practical knowledge of the safety management system was a most common theme

as set forth in the answers provided by 85% of the participants.   This knowledge adopts an

organized approach to managing safety, including the necessary organizational structures,

accountabilities, policies, and procedures (Yi, 2012). SMS has grown within the last 10 years

from a safety program to a regulatory and certification requirement.

        Barry Allen felt that the SMS requirement not only impacts an organization, but also the

employees at every level within the organization: "Now with SMS, just about every task or job

or anything that you want to do on an aircraft system or airport system has some sort of risk

involved, so it also has an SMS incorporated with it. So to me, that specialized training that's

important would be heavily involved with the safety management system in general." Wally

West also mentioned this fact that SMS requirements will not be changing anytime soon: "It's

viewed as a certification program, or a registration program, and that's not the intent of what it

started out to be. It wasn't a goal to have it some sort of a compliant program because the

federal government can't really do that because what they're trying to do now is come out with

minimal standards. And a minimal standard can't be regulated for a safety management system."

This is not the first participant to question the implementation of SMS, while understanding the

need for a practical understanding of the SMS requirement and assessment risk. Alan Scott

explained it as, "SMS is the big one. How to keep it dynamic and build a culture to keep SMS

breathing and growing so it does what it was designed to do and not be reactionary [*sic*]. In

other words, doing it right. The problem is the FAA hasn't figured out exactly what they want

yet. They are tasked with ensuring safety, but yet [they] still need self-reporting professionals,

and they have an expectation of people doing things the right way."

Practical Program Knowledge.

Seventy-three percent (73%) of participants were overwhelmingly in support of more practical

knowledge being taught, instead of the theoretical knowledge that most college programs seem

to endorse. Kyle Rayner explains this as a need to understand the overall safety program

parameters and not just the accident investigation aspect:

> I definitely see that in that a safety department isn't just safety investigations. We have
>
> audits, evaluations, ground safety, and health safety. The department consists of a lot of
>
> different areas and has a lot of employees at various levels. Most of the safety
>
> department personnel we have are interested in safety, but I wouldn't say most got into it
>
> at the beginning because they were really interested in safety, that's something that's
>
> grown over time. The problem is most people look at aviation safety only thinks of
>
> accident investigation, and not the overall program that some would consider mundane
>
> office work rather than the fieldwork that holds more glamour. There are many
>
> evaluations and audits and FAA rules and policies that need to be acted upon. Although
>
> it may appear to be less glamorous, it is really important, but I don't think that message is
>
> communicated to people that are in college.

Alan Scott supported this simply as, "[t]each the practitioner of the program and also the

hands-on skills required to accomplish the job. We need people that know what the job is, and

how to accomplish it." This is not to say that there does not need to be some theory taught as a

foundation for preparation of a college graduate, but the practicality of training is becoming

more important, as Hal Jordan suggested when he stated, "Today we need graduates ready to work; we're not seeing it though. It's still the old standby of theory and no practicality. In fact, graduates aren't able to refocus, change, and adapt in the working environment; all of which we need them to be capable of."

Abin Sur described this as "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. And I definitely think its way too theoretical and less practical. I think while I had a theoretical knowledge, and that can be useful, but I think most of the things I learned came from my internships and not from school. There was a lot more un-learning of the theoretical knowledge, and I had to learn the practical requirements of what my job entailed while actually on-the-job." This practical knowledge the participants refer to is a need to understand safety management, as it pertains to its many facets.

Simon Baz described training as "try to make sure it's based on the practical application, so they come out ready because in reality the theory they can read on their own." Practical knowledge is useful to both the organization as well as the safety personnel because of better work performance through a stronger foundation of work skills. It also allows the employee to cope with work pressure through a better understanding of the job requirements.

Evaluation of Findings

Every participant interviewed in this study demonstrated a degree of comprehension of the safety management needs and requirements of the aviation industry. Furthermore, almost every participant defined the same needs, and stressed the importance of practical knowledge and not just hypothetical theories. Participants generally expressed a high level of understanding and

an impressive level of experience. During the interviews a common understanding was arrived

upon: postsecondary academic programs are not sufficiently preparing safety managers but

instead practical hands-on, certificate programs and internships are doing so. Kyle Rayner stated

this best, "I think most of the things I learned came from my internships and not from school.

There was a lot more un-learning of the theoretical knowledge and I had to learn the practical on

the job. It was not a way that I thought I would have to go through for my career if that makes

sense." Lia Nelson added, "Anytime you can get a student an internship to see at least one

perspective of how a business or a company operates with safety, they will walk away having

seen [safety] in action."

Overall, there is a perceived lack of graduate preparation on the part of the academic

institutions by the participants, and an overwhelming viewpoint that academic programs are not

as in-depth as they need them to be. This is not to say that the aviation and aerospace industry is

not complicit in the design of the programs. Wally West expressed the view that "a professional

cannot manage safety as one would manage operations, because in safety you do not know you

have failed until something goes wrong. That being said, you can, in fact, manage risk, and until

the aviation and aerospace industry accept[s] that safety management is a profit venture, the

postsecondary academic institutions will not be requested to expand the program offerings. That

seems to be the piece that's missing mostly in safety, professionals having the ability to

communicate and showing the value added for safety."

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 information

gathered from the interviews indicates 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

necessarily in a postsecondary academic program.

Inasmuch as 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 became evident. This absence demonstrates that a well-trained, and ready to

perform, graduate will not be available via the training through a postsecondary program.

Instead, 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. By having

employees attend certificate programs, instead of looking to hire postsecondary academic

program graduates, there stands a better chance of having safety personnel trained for specific

job needs that the organization may require.

The study provides an important contribution to the ongoing preparation of safety

management in the aviation and aerospace industry. The teaching of practical application of

knowledge within a postsecondary academic institution, versus a purely hypothetical knowledge

can lead to a better prepared graduate to serve in the workforce (Kaplan 2012). The

constructivist practice of instruction turns the traditional process upside down. While the teacher

is an information resource and may direct the classroom group, in the constructivist paradigm a

teacher is not the sole proprietor of knowledge and the critic of performance (Becker, 2004).

The constructivist paradigm requires students to build their own knowledge structures and to

create their own base of understanding (Hyslop-Margison & Strobel, 2008).

Creating and implementing an aviation safety program has a direct impact on the day-to-

day function and financial well-being of the organization (Bjornsen, Nash, & Jones, 2012). To

properly assess the rules, regulations, and procedures, it is vital to have someone properly trained

for this undertaking. The aviation industry is a dynamic environment wrought with both risk and change. Thus, career preparedness is vital (Atak & Kingma, 2011). The only way to avoid both incidents and accidents before they occur is to accurately detect risk areas and work to reduce them proactively (Darr, Ricks, & Lemos, 2010). Innovation of the safety system must be done with cooperation with industry partnerships. The leaders in the aviation and aerospace industry are experts in the skills required for their personnel while the academic institutions are the experts at education and developing higher order thinking skills and the theories associated with such (Green & Farazmand, 2012). Graduates need the skills and certifications that firms require as well as the education and learning skills of the academic institution in order to become productive within their chosen field (Joseph & Payne, 2010). The preparation, development, and readiness to perform and to be career-ready and operate within the needs and requirements of any industry are a basic purpose of the university system.

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