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Editor-in-Chief



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# STATEMENT OF OBJECTIVES

The University Aviation Association publishes the *Collegiate Aviation Review International* throughout each calendar year. Papers published in each volume and issue are selected from submissions that were subjected to a blind peer review process.

The University Aviation Association is the only professional organization representing all levels of the non-engineering/technology element in collegiate aviation education and research. Working through its officers, trustees, committees and professional staff, the University Aviation Association plays a vital role in collegiate aviation and in the aerospace industry.

The University Aviation Association accomplishes its goals through a number of objectives:

To encourage and promote the attainment of the highest standards in aviation education at the college level

To provide a means of developing a cadre of aviation experts who make themselves available for such activities as consultation, aviation program evaluation, speaking assignment, and other professional contributions that stimulate and develop aviation education

To furnish an international vehicle for the dissemination of knowledge relative to aviation among institutions of higher learning and governmental and industrial organizations in the aviation/aerospace field

To foster the interchange of information among institutions that offer non-engineering oriented aviation programs including business technology, transportation, and education

To actively support aviation /aerospace oriented teacher education with particular emphasis on the presentation of educational workshops and the development of educational materials covering all disciplines within the aviation and aerospace field

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## Editor's Commentary

Most authors are not statisticians. Authors learn about statistics through application, to make sense of the data. Some authors have great role models, who understand when and how to use different statistics. But an author should not depend on merely observing how statistical tests are implemented by others. By doing so it is possible to misunderstand the intent. If an author is unsure, plenty of Internet sites are available to guide him or her. Authors should never overestimate findings by misrepresenting the strength of the data with a statistic test of higher power when the data are weak or the sample is of insufficient size.

In this issue we showcase the timely work of Wilson, Basile, and Dusenbury. The authors measured the impact of funding changes by the Department of Veteran's Affairs. The subject is one that affects us all. We owe a great debt to those who have given of their time and energy to the United States while serving in the uniformed services.

On a personal note, the June/July issue of the *Collegiate Aviation Review International* seems to be a good time to produce an array of book reviews. Perhaps it will develop into a tradition. In late summer, many academics are asked by their administrations to prepare to teach courses in the fall semester, without being given any recommendations for course text. The search for the right text can take weeks; and if the right text is found, one still has to develop the course and teach it. I would like to shorten your search, by giving the reader information about the books I recommend for classroom use. Over the years, I have used a number of texts, either as principal texts or as companion texts. Hopefully, the reader will find these reviews helpful.

I want to thank the editorial staff and the Publications Committee for their support.



Todd P. Hubbard, Ed.D.

## Contents

Feature Article .....	85
Funding Changes from the Department of Veterans Affairs: .....	86
Book Reviews .....	99
Aviation Law Texts .....	100
Fundamentals of Aviation Law (Raymond C. Speciale) .....	100
Practical Aviation Law (5th ed.) (J. Scott Hamilton) .....	100
Companion Texts .....	102
A Human Error Approach to Aviation Accident Analysis: The Human Factors Analysis and Classification System (Douglas A. Wiegmann & Scott A. Shappell) .....	102
Human Performance and Limitations in Aviation (3rd ed.) (R. D. Campbell & M. Bagshaw) .....	103
Darker Shades of Blue: The Rogue Pilot (Tony Kern) .....	104
The Limits of Expertise: Rethinking Pilot Error and the Causes of Airline Accidents (R. Key Dismukes, Benjamin A. Berman, & Loukia D. Loukopoulos) .....	105
The Multitasking Myth: Handling Complexity in Real-World Operations (Loukia D. Loukopoulos, R. Key Dismukes, & Immanuel Barshi) .....	106
Safety Differently: Human Factors for a New Era (Sidney Dekker) .....	107
Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations (2nd ed.) (Geert Hofstede) .....	108
Arts of Power: Statecraft and Diplomacy (Chas. W. Freeman, Jr.) .....	109
The Greatest Minds and Ideas of All Time (Will Durant) .....	110

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Peer-Reviewed Researched Study

Feature Article

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Funding Changes from the Department of Veterans Affairs:  
Measuring the Impact on Undergraduate Flight Student  
Career and Academic Goals

Nicholas D. Wilson, Eric Basile, and Mark Dusenbury  
University of North Dakota

**Abstract**

Financial support for the education of veterans and their dependents has been a part of higher education since after the Second World War. This support is also essential to assist veterans in their transition from military to civilian careers. Periodically, funding for educational financial support from the VA comes under scrutiny from the public, Congress, and special interest groups. Recent criticism of excessive VA payments for veterans undertaking flight training at public institutions of higher education has resulted in multiple legislative proposals to limit (cap) or eliminate flight training funding. This article focuses on changes to potential student outcomes if either of these changes is implemented. Forty students currently receiving veteran benefits and enrolled in flight or flight-related degree programs at a four-year public institution were surveyed. Thirty-two percent of respondents would change to a non-flying major or leave college if funding was capped at the proposed level of \$20,235. By comparison, 67 percent of respondents would change to a different major or drop out of school if funding for flight training was eliminated. The results of this survey have broad implications for the aviation industry. Public institutions offering flight training may be forced to scale back or close their programs. Furthermore, reducing financial support for flight training costs may cause future veterans to avoid undertaking flight training altogether. In the long term, this may have an adverse impact on the already challenged domestic pilot supply. Avenues for further investigation are proposed.

*Keywords: pilot supply, flight training, Veteran's Affairs, educational funding, educational outcomes, completion rates.*

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Financial support for education has been a cornerstone of the benefits package offered to military veterans that have served and separated from the armed forces in the United States. Since the introduction of the Servicemen's Readjustment Act of 1944 (also referred to commonly as "the GI Bill"), enrollment for veteran students in higher education has risen dramatically, with nearly 1.1 million veterans receiving educational support as of 2013 (U.S. Department of Veterans Affairs [VA]: Veterans Benefits Administration, 2014). For decades, a substantial number of veterans have elected to use their educational benefits to pursue flight training with the aim of securing employment in the aviation industry. In particular, the 2011 version of the Post-9/11 GI Bill resulted in a significant increase in benefits paid to veterans for flight training (Pending Health and Benefits Legislation, 2015b). However, possible exploitation of these benefits by flight training providers has drawn public attention. Consequently, legislation has been proposed to amend the VA benefit program to reduce or eliminate payment for flight training costs. If enacted, this legislation could have profound negative effects on the ability of veterans to pursue careers in aviation, as well as to reduce the supply of professional pilots to the aviation industry.

The availability of the GI Bill to service members has changed the landscape of college accessibility for veterans; however, the expanding population of veterans entering into higher education has presented a number of unique challenges impeding veteran student success. These include acclimating to "civilian life", associating with non-veteran fellow students, managing visible injuries, and invisible injuries such as, but not

limited to, post-traumatic stress disorder (PTSD). These key issues create significant barriers to veteran student learning as they transition from military life to higher education. The VA provides several assistance programs for students enrolling in post-secondary education to mitigate these issues, including educational financial support. This support varies depending on factors such as time of service, duration of service, and intended area of continuing education. VA educational assistance provides the necessary financial support, facilitating educational achievement for post-service veterans and their dependents.

## **Background**

The VA is one of the fastest-growing elements of the federal budget (Huber, 2015). The agency's budget in 2014 was \$152.7 billion. Of this, \$86.1 billion was allocated for mandatory benefits, including disability benefits compensation and education benefits. For FY 2016, the agency's budget request increased to \$168.8 billion. Altogether, an estimated 1 million veterans received education benefits in 2014 worth more than \$12 billion at some 12,149 schools (Huber, 2015).

### **Veteran Participation in Flight Training**

The use of veteran benefits for flight training is not new. In the post-Vietnam era, many veterans with accrued benefits pursued Private Pilot certificates for recreational or other purposes, with many having no intention of pursuing a professional career in aviation. The U.S. General Accounting Office (1979) reported that from 1972 to 1978, an average of 35,000 veterans enrolled in flight training annually, with an average cost of over \$51 million per year. However, only 16 percent of veterans who had received flight training benefits reported full-time employment directly related to that training, falling below Congress' objective that at least 50 percent of veterans secure employment in their selected occupational category (U.S. General Accounting Office, 1979). Consequently, funding for flight training of veterans was eliminated by Congress and was not reinstated until 1990. Bedell (1995) notes the reinstatement of flight training benefits included a requirement that veterans obtain a Private Pilot certificate at their expense before becoming eligible for funding. Ostensibly, this would reduce the pool of applicants for flight training benefits to those seeking advanced training for employment purposes. By 1993, 56 percent of veterans who had received the reinstated flight training benefits were employed in aviation-related jobs (Bedell, 1995).

In the post-9/11 era, flight training has remained an attractive benefit for veterans, although the numbers of veterans enrolled in flight training are only a fraction of those seen in the post-Vietnam era. In FY 2013, 1,713 veterans received benefits while enrolled in flight training programs. This increased slightly to 1,884 veterans in FY 2014 (Huber, 2015).

### **Current VA Funding for Flight Training**

Payment for flight training is available to veterans under a variety of programs, including the Montgomery GI Bill, Post-9/11 GI Bill, Reserve Educational Assistance Program, and others (Huber, 2015; U.S. Department of Veterans Affairs, 2015). Each program has various eligibility requirements and funding levels. This discussion focuses on benefits provided under the Post-9/11 GI Bill, as the legislative proposals described below would amend the benefits of this particular program.

The Post-9/11 GI Bill provides up to 36 months of educational benefits, generally within 15 years of a veteran's separation from active duty. Veterans may use their Post-9/11 GI Bill educational benefits for flight training if they are enrolled in a degree program at an accredited college or university (institution of higher learning, or IHL), and that training counts towards degree completion. Notably, students enrolled in a degree program may receive benefits for their entire flight training, with no requirement that the veteran obtain a Private Pilot certificate at their own expense.

Benefits paid to veterans attending *private* colleges and universities are subject to an inflation-adjusted annual cap, currently set at \$21,084 for the 2015-16 academic year (U.S. Department of Veterans Affairs, 2015). By contrast, *public* IHLs are not subject to the tuition and fee cap applicable to private colleges/universities. At public IHLs, VA will pay the actual net cost of a veteran student's in-state tuition and fees for their degree program, including all flight training fees (Pending Health and Benefits Legislation, 2015a; U.S. Department of Veterans Affairs, 2015). In FY 2013, the VA spent \$42 million on tuition and fees on behalf of the 1,713 veterans enrolled in flight training programs, an average cost of \$24,518 per student. In FY 2014, the cost increased to \$80 million, amounting to \$42,462 per student (Huber, 2015).

### **Concerns with VA Flight Training Funding**

The lack of a benefits limit at public IHLs has led many independent flight schools to establish contractual relationships with public colleges and universities to provide flight training. These types of contractual relationships have been particularly prominent in the case of helicopter flight training schools (Pending Health and Benefits Legislation, 2015b; Zarembo, 2015a). This type of contractual relationship is advantageous for both parties, as the overhead costs of establishing a flight training program are high, and many public IHLs are unable to accommodate purchases of expensive aircraft and equipment (Congressional Budget Office, 2015). For flight schools, partnering with a public IHL provides access to a stream of well-funded prospective students who desire to use their VA benefits to pay for flight training. According to Huber (2015), as of FY 2014, there were 111 VA-approved public IHLs with flight training programs. This figure does not distinguish between IHLs with contracted flight programs and those that choose to operate their own flight program in-house. In late 2014, the VA became "concerned about high tuition and fee payments for enrollment in degree programs involving flight training at public IHLs...in some cases, public institutions seem to be targeting veterans with their flight-related training programs" (Pending Health and Benefits Legislation, 2015b, p. 22). Although flight training benefits are a relatively small percentage of the total amount, VA pays for educational benefits overall, Huber (2015) reported the increase in flight training costs to the VA has greatly exceeded the overall rate of growth of educational benefits.

VA paid an approximate average of \$42,000 per individual in tuition and fees for all beneficiaries enrolled in flight-training programs at public institutions in 2014 (Congressional Budget Office, 2015; Huber, 2015). However, some veterans, especially those enrolled in helicopter training, received benefits well in excess of this amount. A series of articles in the *Los Angeles Times* (Zarembo, 2015a; Zarembo, 2015b, Zarembo, 2015c) brought widespread public attention to several examples of high training costs for individual veterans enrolled in flight training. Zarembo (2015a) characterized the unlimited funding level for veterans as a "windfall" for flight schools; the training for 12 students at one school had cost over \$500,000 for each student. Huber (2015) notes in one instance VA paid more than \$534,000 for flight training fees and tuition for one student for one year.

While flight training in helicopters is more expensive than training in fixed-wing aircraft, in many cases these large costs stem from flight schools offering a significant amount of training in more expensive turbine helicopter equipment rather than traditional entry-level piston helicopters. Zarembo (2015a) quoted one flight school operator: "Because there was no cap, we started to one-up each other...You kind of end up with an arms race."

An additional concern VA has expressed is that many veterans are electing to take flight training purely as elective courses to 'round out' an unrelated degree, even though it is not specifically required for that degree (Pending Health and Benefits Legislation, 2015b).

### **Proposed Changes to Flight Training Benefits**

Concern regarding prominent examples of large per-individual costs being paid by VA has resulted in several legislative proposals intended to address the situation. H.R. 476, also known as the GI Bill Education

Quality Enhancement Act of 2015, was introduced in January of that year. Section Four of that bill would take the annual cap on benefits currently imposed on beneficiaries attending private or non-US IHLs, and also apply it to beneficiaries undertaking flight training at public IHLs. For the 2014-2015 academic year, this benefits limit was set at \$20,235 per year (H.R. 476, 2015). At present, it appears this bill has stalled in the House Veteran's Affairs Committee.

However, similar language was also incorporated by the sponsor into H.R. 3016, the VA Provider Equity Act. Section 306 of that bill also applies the \$20,235 annual cap to flight training costs at any public IHLs. Notably, this includes a two-year delay on the reduction of benefits for students who are currently enrolled in flight training programs (H.R. 3016, 2015). As of December 2015, this bill has been referred to the whole House of Representatives for a vote.

The United States Senate Veteran's Affairs Committee has also circulated a draft bill regarding flight training fees (Pending Health and Benefits Legislation, 2015), but no formal bill has been filed in that chamber. Section Three of the draft under discussion applies the \$20,235 cap to flight training at public IHLs. However, the cap would *only* apply to public IHLs that enter into a contract or agreement with a third party (other than another public institution of higher learning) to provide flight training. It appears that public IHLs who maintain flight training programs in-house would not be subject to the cap. This draft bill does not include a delay on the reduction of benefits.

It should be stressed that the language of these proposals remains subject to amendment. Students whose annual flight training fees, tuition, and other costs are under the cap would not be affected. The Congressional Budget Office (2015) estimates approximately 600 students per year would be impacted by the caps, in that their tuition and flight training fees would be in excess of the cap. In 2014, 544 students would have exceeded the cap had it applied to them during that year. These students had average individual flight training costs of \$62,000, or \$42,600 over the cap level. Overall, it is expected that payments to schools for flight training would decrease by \$342 million over the period from 2016-2025 if the cap is implemented. This value excludes an offset in payments through the Yellow Ribbon Program (Congressional Budget Office, 2015).

## **Review of Literature**

### **Educational Characteristics Unique to Veterans**

It would be inappropriate to discuss educational outcomes of students receiving VA benefits without also identifying some of the unique demographic background shared by a large portion of this student subset. Numerous studies have been undertaken to illustrate specific factors as well as unique characteristics of post-service veterans as learners in the collegiate environment. For the purpose of this publication, it is appropriate to begin discussion on recent VA trends in higher education and finish with challenges unique to post-service veterans.

To provide numerical context, approximately 2.4 million American men and women have served in conflicts in the Middle East since 2001 (McCaslin, Leach, Herbst, & Armstrong, 2013). To highlight the impact of these individuals and their returning influence on enrollments in higher education, there were approximately 397,598 veterans receiving benefits under VA programs in 2000. By 2012, that number increased by more than 150 percent (McCaslin et al., 2013). Specific to the University of North Dakota (UND), there were approximately 1,100 veteran students as of Spring 2015 receiving some assistance from the VA or another governmental program. (Office of Institutional Research (OIR)). Note that veteran students who were not receiving support were not included in this number, and thus, the total veteran student population is likely higher than 1,100. The notable increase in veterans receiving benefits can be attributed to the increasing population of enlisted, reserve or military officers returning from Operation Enduring Freedom (OEF), Operation Iraqi Freedom (OIF), and Operation New Dawn (OND) as well as related conflicts during the years



2001-present. Table 1 shows data from the Annual Report on Education from Veterans Affairs breaks down the numbers of students enrolled in one of the seven VA programs.

Table 1  
Beneficiaries Receiving VA Education Benefits by Fiscal Year.

<b>Education Program</b>	<b>2009</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>
<b>Post-911</b>	34,393	365,640	555,329	646,302	754,229
<b>MGIB-AD</b>	34,1969	247,105	185,220	118,549	99,755
<b>MGIB-SR</b>	63,469	67,373	65,216	60,393	62,656
<b>VRAP</b>	-	-	-	12,251	67,918
<b>REAP</b>	42,881	30,269	27,302	19,774	17,297
<b>DEA</b>	81,327	89,696	90,657	87,707	89,160
<b>VEAP</b>	448	286	112	76	29

*Note.* (VA, 2014)

The data above provides context for the nominal count of veteran students in higher education in the recent past as well as the number of students who benefit from VA educational programs. The data does not show the qualitative or human-side story of the veterans as adult learners including retention, completion rates, and academic performance of those populations. However, the data above does help provide a numerical reference when estimating the impact of legislative changes to VA financial educational support for both aviation and non-aviation related degree programs.

### **Does VA Assistance Support Educational Attainment?**

As noted earlier in this review, the amount of veterans receiving financial support for education from the VA has increased substantially since 2000. As of 2013, the total number of veterans receiving benefits was 1,091,044 with a total of \$12,072,603,175 funds distributed to this population (VA, 2014). It should be noted that approximately 84 percent of this funding was distributed specifically to Post-9/11 GI Bill recipients (VA, 2014).

Data from the VA reports that a relatively large population (over 1 million veterans) receives support for educational goals through the VA. However the question remains whether this support is placed where it will produce the greatest net benefit for those individual students as current participants in higher education. A 2009 article focused on the protective effects of the GI Bill (and other various forms of support) and relationship to successful re-entry and continuous enrollment in higher education, however, more narrowly focused on injured or disabled veterans' achievement in higher education (Smith-Osborne). The research seemed to indicate that the GI Bill, non-VA financial aid, and use of the VA health system did not appear to reduce the impact of a veteran's disability on the educational outcome, yet other observations were noted.

The final model was significant (CI=.0001-.0048). The results were that non-labor income and informational social support had a positive mediational effect, and number of dependents had an inverse mediational relationship, suggesting that more sources of cash benefits and increased density of social networks (i.e., social support directed to providing access to information) mediated the risk of disability on educational attainment, while increasing numbers of dependents had a suppressor effect on educational attainment. (Smith-Osborne, 2009, p. 119)

The results of this study seem to suggest that traditional support for veterans as adult learners is not as effective as we would have otherwise accepted. Factors that were observed to have a more positive impact included established supportive peer-networks and non-labor cash benefits, whereas a negative factor included

a number of dependents the veteran student may have. Although this article focused on a particular subset of veteran students, what conclusions can be drawn to the population as a whole? What are other colleges and universities doing to address the gaps noted by Smith-Osborne?

A Field Hearing by the U.S. House of Representatives (USHR) Committee on Veterans Affairs addressed some of the questions related to veterans as adult learners and the impact of support on their educational outcomes. Specifically, the panel witnessed the testimony of three officials in the higher education system in California; represented by University of California – Riverside, DeVry University, and Riverside Community College. The testimonials echoed a similar story, that each institution has great support for veteran students and that the government (VA) was a key partner in the support of those programs.

The testimony of Ms. Pamela Daly, Campus President of DeVry University, pointed out some unique metrics and programs specifically associated with DeVry. According to the hearing, DeVry provides a variety of support to veteran students, including those noted below.

To make DeVry University education more affordable for active duty military and their spouses, these students receive special tuition rates. We also provide veterans with tuition grants, and veterans and service members alike can qualify for credits based on their military coursework as we follow the American Council on Education Military Guide. We also participate in the Department of Veteran Affairs' Principles for Excellence program, and DeVry University is a member of the Service Members Opportunity Colleges Consortium, as well as the SOCS degree network system. DeVry University has a dedicated military affairs team. It is comprised of former service members, veterans, reservists, spouses, that provide ongoing support to the veterans and active-duty members throughout their education. We also have student success coaches who closely assist military students to complete education plans, identify potential barriers to success, and to obtain resources to overcome those barriers and assist them with registration from semester to semester. We offer our staff sensitivity training through the VA and provide the VA Vet Centers open access to the campus, allowing for free communication with veterans and early identification of issues that they might face.

A prospective student goes through a pre-screening with a military education liaison who is a member of the Military Affairs Team and is typically the veteran's initial contact. They then meet in our comprehensive interview with an admissions advisor. The advisor explains the interview is a two-way process. We are interviewing the candidate, and they are also interviewing us to ensure that this is the right choice for their educational and career goals. DeVry University has resources in place to help our military students' transition to school and work through the challenges that they face. The program is called the DeVry ASPIRE program. It provides confidential and free counseling services 24/7 to all enrolled students and their family members, and it helps them with things such as financial and legal consultation and referrals, mental/emotional/behavioral issues, PTSD, child care issues, family concerns, anything that might create an obstacle to the student's success in their degree program. On campus, we have a veterans Resource Center that is dedicated space for veterans to find military resources and contacts, including an advisor to again help them who is dedicated to military-oriented problems and challenges.

The San Diego campus has hosted military educator forums in collaboration with local ESOs and created and promoted designated military job fair opportunities. To further support veteran students, DeVry University has an active veteran community at many of our campuses, and at San Diego, we have just initiated the Student Veteran Association, which will be having its first meeting in January.  
(USHR, 2013, pp. 7-8)

The various programs and methods mentioned by Ms. Daly, whether directly supported by government programs or supported independently by colleges and universities, do appear to be somewhat representative of the services offered at many institutions. Although those programs and levels of investment may not exist at all colleges and universities, some form of veteran support appears to be consistent on most campuses as witnessed through an informal online search of individual universities.

### **Contemporary Challenges to the Pilot Supply**

The challenge of maintaining an adequate supply of professional pilots for the aviation industry has been under debate in recent years and is currently under review by government, academia, and industry groups. Challenges faced in obtaining pilots include, but are not limited to, increasing costs of flight training, uncertain risk/reward of the professional pilot career path, pilot retirements, a decline in the number of pilots commencing training and the yet-to-be-defined impact of changes to legislation relating to pilot qualifications.

The numbers of individuals obtaining flight training have consistently declined for many years. FAA data for the past decade shows the number of Private and Commercial Pilot certificates issued are down 41 percent and 30 percent, respectively (Carey, Nicas, & Pasztor, 2012). As it relates to the ultimate objectives of these pilots, a survey of the flight training industry administered by AOPA (2010) suggests only 29 percent of student pilots express an intent to seek a professional flying career.

When considering the demand for new pilots, a study by Boeing (2015) forecasts the industry will demand an additional 95,000 pilots in North America over the next 20 years. Estimates from the U.S. General Accounting Office (Dillingham, 2014) suggest several thousand pilots will be required annually over the next ten years in the airline industry alone. The overwhelming majority of regional air carriers surveyed reported difficulty in recruiting entry-level pilots (Dillingham, 2014). Huber (2015) notes that the proportion of veterans enrolled in flight training annually is only a small percentage of the number of student pilots in the United States. Nevertheless, veterans represent an important supply of potential professional pilots to industry, as they are overwhelmingly pursuing flight training for professional pilot employment, when compared to the career intentions of the overall student pilot population.

The decline in the numbers of individuals seeking flight training, as well as the forecasted demand for pilots in an expanding global economy has already created a troublesome dilemma for the aviation industry; a dilemma that may be exacerbated by the proposed changes to VA financial educational support.

### **Research Questions**

- *How are aviation educational outcomes impacted should yearly funding for flight training be capped at \$20,235 for students receiving educational financial support from the VA?*
- *How are educational outcomes impacted should funding for flight training be eliminated for students receiving educational financial support from the VA?*
- *What influence do the individual student's completed credits have on educational objectives if capping or eliminating funding for flight training becomes law?*
- *What influence does the individual student's currently held FAA flight certificates have on educational objectives if capping or eliminating funding for flight training becomes law?*

### **Methodology**

Email addresses were used to disseminate the survey that was hosted via on Qualtrics®. Respondents, on the survey, that indicated they were currently receiving financial educational benefits from the VA were included in the dataset. Respondents that reported they were not currently receiving financial educational

benefits from the VA were excluded from the dataset. The collected data was processed via Statistical Package for Social Sciences (SPSS)®.

## Demographics

The subject population included undergraduate students with a declared aviation-related major at a four-year research university in the Midwest. The population consisted of 40 respondents with a mean age of 26.3 years. The majority of the respondents were single (58 percent), however, other marital statuses were reported with married (30 percent), divorced (10 percent) and separated (2.5 percent) also represented. The respondents reported an average of 0.55 dependents; however, the majority of respondents listed no dependents (75 percent). Those surveyed self-reported a mean of 83.5 completed credits. (Note: Two respondents reported values other than a discrete, nominal value. These two reports were adjusted to the lowest numerical value included in their response). The majority of students surveyed were pursuing flight-related degrees (77.5 percent of respondents) to become professional pilots, with a smaller proportion for other areas of study including Unmanned Aircraft Systems (18 percent).

## Results

To address the research questions, participants were asked their opinion on two proposed legislative scenarios that would cap or eliminate funding, for flight training at public colleges and universities. The first scenario would place a cap (\$20,235 per academic year) on flight training programs; the second scenario would eliminate all payment for flight training fees.

Overall results indicated that if funding is capped, 68 percent of the participants plan to finish their current degree program, and 32 percent plan to move to a different aviation degree, change to a non-aviation degree, or drop out of college (Table 2).

Table 2  
Participant Responses to Capping VA Educational Assistance to \$20,235<sup>a</sup> year.

	Response (n=40)	Percent
I plan to finish my current degree program	27	68
I plan to finish in a different degree program within aviation	4	10
I plan to finish in a non-aviation major	2	5
I do not plan to finish college	7	17

*Note.* <sup>a</sup> The funding cap of \$20,235 represents the 2014-2015 inflation-adjusted funding value applicable to private IHLs. This value will adjust according to inflation for subsequent years.

If VA funding for flight fees is eliminated, the participants plan to finish their current degree program dropped to 33 percent (compared to 68 percent if capped), with 12 percent planning to move to a non-flying aviation degree. Fifty-five percent of respondents plan to finish college in a non-aviation major or drop out of school (Table 3).

Table 3  
Participant Response to Eliminating VA Educational Funding for Flight Training.

	Response (n=40)	Percent
I plan to finish my current degree program	13	33
I plan to finish in a different degree program within aviation	5	12
I plan to finish in a non-aviation major	13	33
I do not plan to finish college	9	22

A results breakdown by current FAA flight certificate held indicates 58 percent of student pilots plan to finish their current flight program if funds are capped, and 25 percent plan to complete their current degree program if funding is eliminated (there is 33 percent decline from capped to an eliminated funding scenario). If funding is capped, 88 percent of Private Pilots will continue with their current flight program, and if funding is eliminated, 41 percent will continue with their current flight program. Table 4 shows the responses to capping or eliminating funding by certificate level.

Table 4  
Response by Current Certificate to Limit or Eliminate Funding

Certificates Held	Plan to finish current flight program		Change to a non-flying aviation degree		Change to a non-aviation Degree		Drop out of College	
	Limit	Eliminate	Limit	Eliminate	Limit	Eliminate	Limit	Eliminate
Student (n=12)	7	3	2	0	0	7	3	2
Private (n=17)	15	7	1	4	0	3	1	3
Commercial (n=3)	2	1	0	0	0	0	1	2
CFI	3	2	1	1	1	1	2	0

Note. n=39

The majority of students with a credit load of fewer than 60 credits plan to finish their current flight program if funding is capped (75 percent); however, only 31 percent plan to continue if funding is eliminated. Sixty-two percent of students with more than 60 credit hours plan to continue flight training if funding is capped, and 33 percent plan to continue their current flight program if funding is eliminated. Table 5 (below) outlines the responses by credit hour.

Table 5  
Response by Credit Hours to Limit or Eliminate Funding

	Plan to Finish Current Flight Program		Change to a different non-flying degree		Change to a non-aviation Degree		Drop out of College	
	Limit	Eliminate	Limit	Eliminate	Limit	Eliminate	Limit	Eliminate
*Less Than 60	12	5	1	2	1	7	2	2
**More Than 60	15	8	3	3	1	6	5	7

Note. \*n=16, \*\*n=24

The majority of students (51 percent) that indicated that flight is their primary major indicated they would continue their current degree program if funding were capped, and 28 percent said they would continue if funding were eliminated. Thus, capping decreases the number of potential pilots by 49 percent, and eliminating funding reduces potential future pilots another 23 percent (49 percent to 28 percent). Table 6 shows responses by declared major subgroup and how capping or eliminating funding may impact academic objective.

Table 6  
Response by Declared Major

	Plan to Finish Current Flight Program		Change to a different non-flying aviation degree		Change to a non-aviation Degree		Drop out of College	
	Limit	Eliminate	Limit	Eliminate	Limit	Eliminate	Limit	Elimin.
Flight Major	18	10	4	2	2	11	5	6
All Others	5	2	0	1	0	1	1	2

Note. n=35

## Discussion

This study served to validate hypotheses surrounding the proposed changes to the flight training funding models currently under discussion. However, the magnitude of changes observed in the aggregated responses were larger than anticipated within some of the variable groupings. There was an anticipated reduction in the number of respondents who would continue their chosen flight-related program of study, yet, the decline was larger than expected. Sixty-eight percent of respondents would continue if funding is capped, dropping to 33 percent if funding is eliminated. The results of the survey show that capping or eliminating VA funding for flight training fees will have a negative impact on those veterans that responded, which will have adversely effected the commercial pilot supply.

The commitment demonstrated through the acquisition of the Private Pilot certificate (PPC) appears to correlate strongly with a desire to complete the planned degree. As noted above, if funding is capped, 88 percent of students with a PPC would continue their current aviation degree program, dropping to 41 percent if funding is eliminated. The continuation metrics for VA funding recipients who only hold a Student Pilot certificate (SPC) are 58 percent and 25 percent, capped and eliminated, respectively. As an SPC requires little commitment and is acquired through a simple application process, the trainee has neither invested nor committed any significant level of resources – time, money or otherwise – at the point of issuance. In summary, for those students who hold a PPC, capping has a negligible effect on continuing their current flight program, while eliminating funding shifts the majority of students to degrees that do not require flight training.

With respect to the completed credits, the researchers noted some mixed results along the 60 credit hour completion variable. At the sophomore level and above (represented by the 60 credit cut-point), students would be expected to be more engaged and committed to their goals and educational objectives and would have a higher expected level of retention in the face of changes to their originally anticipated educational (financing) plan. However, an interesting observation was noted: 75 percent of students with fewer than 60 completed credits hours would continue on their current flight-related degree program if funding was capped, whereas, only 62 percent for students with more than 60 completed credit hours would continue their current flight related degree. The responses declined to 31 percent and 33 percent, respectively, if funding is eliminated – which is a more expected outcome. Although the sample size is a limitation of the study, students whom are closer to completing their objectives would be expected to be more inclined to continue, particularly if funding for flight training is capped, and not eliminated. The researchers hypothesize that students whom may be closer to or enrolled in later flight courses are more aware of the larger costs of flight training and may be less inclined to pay for flight training unless it is completely funded. This funding model may have become the students’ “expectation” by this point in their academic career and therefore a more elastic response to variations in the funding model, compared to their more junior peers. This information is valuable to decision-makers when considering impacts to educational outcomes, and specifically pilot supply related questions.

Related to the scope of this research, it is important to note the impact to institutions with potential changes to the VA funding of flight-related degree programs. Should funding be capped or eliminated, the resultant changes to students’ academic objectives would also directly impact institutions, both large and small,

leading to potential closings or program suspensions. Smaller IHLs and IHLs whom offer helicopter training as a part of their curriculum may be particularly affected. As is noted earlier in this article, helicopter training carries with it a larger fixed and variable costs for the institutions and subsequently a higher individual student costs. An example of such an IHL who has announced its intentions to suspend its helicopter degree program indefinitely is Palm Beach State College, which was “notified to upgrade its curriculum to comply with the Department of Veterans Affairs.” (Quesada, 2015) It is anticipated that additional program suspensions or flight school closings could occur should Congress pass the subject legislation.

### **Limitations**

The researchers note an approximate response rate of ~ 49 percent of those surveyed and currently receiving educational financial support within the aviation program at the studied university. The dataset and subsequent research conclusions could be strengthened through the dissemination of the survey to additional four-year educational institutions with flight-related degree programs as well as a higher response within the current organization. It should also be noted that the two legislative vehicles which may be responsible for these changes were amended to include a funding “grandfather clause” to the recipient of either one (HR 3016) or two years (HR 476). It is not anticipated that any of the respondents had any meaningful knowledge or awareness of these amendments at the time of the survey issuance, and therefore, responses would not have been unduly influenced. It is anticipated that the answers may change if students understood that their degree completion (including funding for flight training) would be continued for one (or two) years after the date of enactment of said legislation.

### **Conclusions**

This research provided valuable information relating to VA funding model changes to flight and flight-related degree programs that can be used by legislators and university decision-makers alike when forecasting student educational outcomes. The research validated key hypotheses including the percentage of students who change to a non-flight related major or leave school when funding is capped (32 percent reduction) and when funding for flight training is eliminated (67 percent reduction). Additionally, the research supports the notion that if funding is capped or flight fees eliminated, previous attainment of a PPC seems to demonstrate significant commitment to a flight-related degree program, when compared to students who simply hold a SPC. The data is somewhat less expected when we consider how completed credits correlate to flight program continuance post-funding changes.

Although this study had a limited population (N=40), the broader significance and importance should be carefully considered. Additional suppressive legislation onto an already stressed supply chain of professional pilots may have unintended consequences not foreseen by current decision-makers. To further validate the study and determine potential secondary or tertiary impact, further research is needed with a wider geographic sampling of four-year colleges and universities which offer degrees involving flight training. The implications of the significant legislative changes currently outlined in HR 3016 and HR 476 may have wide-reaching impacts to students’ educational outcomes and, as a result, the future supply of qualified airline pilots in the United States.

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## Book Reviews

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Fundamentals of Aviation Law (Raymond C. Speciale)

**About the Author**

Raymond C. Speciale is a practicing attorney with Yodice Associates, counsel to the Aircraft Owners and Pilots Association (AOPA) for over 40 years. During more than 15 years as an aviation attorney, he has provided legal services to hundreds of aircraft owners and pilots. Mr. Speciale is an active pilot and flight instructor (CFII). Also a certified public accountant, he has written several booklets and articles for the AOPA related to aircraft ownership and taxation issues. He teaches law and accounting classes at Mount St. Mary's University, where he is an assistant professor (this author information found in book).

**Publisher Information**

Hardcover: 336 pages

Publisher: McGraw-Hill Education; 1<sup>st</sup> edition (June 13, 2006)

ISBN-13: 978-0071458672

Average Customer Review (Amazon) 4.3

Rent Price (Amazon Prime) \$15.11; Buy Used (Amazon Prime) \$45.82; Buy new (Amazon Prime) \$69.30

**Usefulness and Recommendations** ✈✈✈✈ four out of five airplanes

For years I used *Aviation and the Law* by Gesell & Dempsey, because it displayed case briefs for over a dozen subject areas. But it became difficult to find enough books for my students, so I switched to this text. There are far fewer case briefs in this text, but the other information covered in 10 chapters is sufficient for beginners. For those needing a text that will be sufficient for AABI accreditation, this text covers the fundamentals of the U.S. legal system, the U.S. Constitution and Aviation, the impact of criminal law on airmen and air carriers, tort liability and air commerce, administrative agencies and aviation, commercial law applications to aviation-related transactions, entity choice for aviation enterprises, property law issues for aircraft owners and airport operators, employment law and the aviation industry, and international aviation law. The sub-headings make it easy to create quizzes and tests or to develop PowerPoint slides and other classroom materials. The text does not cover space law. And it doesn't attempt to cover laws pertaining to sUAS operation. In this regard, the text is good to teach the basics of air law, but nothing beyond that, which is why I don't rate this text higher than a four.

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**Practical Aviation Law (5th ed.) (J. Scott Hamilton)**

**About the Author**

J. Scott Hamilton is a member of the Embry-Riddle Aeronautical University faculty. He previously served as general counsel for the Civil Air Patrol, then as the national organization's chief operating officer. Prior to that, he served as senior assistant attorney general for the State of Wyoming. While practicing aviation law in Colorado, he also was a faculty member at the University of Denver College of Law, as well as Metropolitan State College of Denver. He is an experienced pilot and skydiver who served as a HALO instructor in the Green Berets. Hamilton is widely published on aviation law and has received many honors, including induction into the Colorado and Arkansas Aviation Hall of Fame.

### **Publisher Information**

Hardcover: 400 pages  
Publisher: Aviation Supplies and Academics, Inc. 5<sup>th</sup> edition  
ISBN-13: 978-1560277637  
Average Customer Review (Amazon): 5  
Rent: \$12.27; Used: \$12.66; New: \$35.30

### **Usefulness and Recommendations** five out of five airplanes

This text is probably one of the most popular texts for instructors seeking a text for an aviation law course. Hamilton bypasses the more complex jurisdictional discussions, which is why many see this text as truly practical and straightforward without undue reference to obscure legal terms. The author's work has been reviewed by some of the leading thinkers in law, from across the nation. Their reviews have improved the author's work, with each succeeding edition. A workbook is also available, for knowledge drills and application sampling for students. This readymade text and workbook make it easy for instructors needing a great text and needing little time to prepare for the classroom. Professional Pilot students are the principal audience, in my view. Little time is spent on reviews of case law. Few cases are mentioned throughout the text, and those that are mentioned are not fully expressed as they would be in the text by Gesell & Dempsey. Whereas Speciale's text is similar to Hamilton's in content, Hamilton focuses more on Codes of Federal Regulations that pertain to persons involved in aviation and on rules for properly buying and selling aircraft. Hamilton has partnered with Sarah Nilsson to produce *Practical Aviation & Aerospace Law*, published as a 6<sup>th</sup> edition in 2015 as an eBook for Kindle. If your students are not all Professional Pilot majors, I suggest that you use supplemental texts to take advantage of previous learning from Business Law courses.

2<sup>nd</sup> Opinion

***Practical Aviation Law, 5<sup>th</sup> ed.***

J. Scott Hamilton

### **About the Author**

Dr. J. Scott Hamilton currently serves as an Assistant Professor of Management and Faculty Chair of the Sky Harbor Center at Embry-Riddle Aeronautical University. Hamilton founded an aviation law firm and practiced law in Colorado for more than 25 years. He later served as Senior Assistant Attorney General in Wyoming. Hamilton previously served as the Chief Counsel and later, Chief Operating Officer for the Civil Air Patrol. He holds a Private Pilot Certificate with Instrument Rating and has accumulated more than 1,700 flight hours. Additionally, Hamilton holds Advanced and Instrument Ground Instructor ratings and is a seasoned skydiver, having logged more than 2,500 jumps. Hamilton earned a Bachelor's degree in economics and business from Hendrix College, a Juris Doctorate from the University of Denver, and Master of Laws in aerospace law from Southeastern Methodist University. Hamilton is widely published in the field of aviation law. Among his many accolades, Hamilton was inducted into the Aviation Hall of Fame in both Colorado and Arkansas.

### **Publisher Information**

Paperback: 400 pages  
Publisher: Aviation Supplies and Academics, Inc.; 5th edition (2011)  
ISBN-13: 978-1560277637  
Average Customer Review (Amazon) 4.8  
Rent Price (Amazon) \$6.97; Buy Used (Amazon) \$8.46; Buy new (Amazon) \$35.30

## Usefulness and Recommendations ✈✈✈✈ four out of five airplanes -Good

*Practical Aviation Law* is a well-written, practical text for basic aviation law courses. The book addresses administrative law, legal implications of aircraft accidents, aircraft ownership and leasing, aviation security, and employment law. Hamilton expertly presents legal issues in lay terms, in an easy-to-understand manner for students that lack a legal background. Hamilton identifies and highlights the role of key organizational players in aviation law, such as the DOT, FAA, NTSB, NASA, TSA, and others. The book provides a thorough overview of FAA enforcement through administrative law, as well as the appeals process for civil penalties, certificate actions, and medical certificate denials. Moreover, Hamilton effectively outlines the various types of tort laws, as well as the potential for liability in aviation organizations.

In addition to aviation law courses, the book is also well-suited for aviation management or businesses courses, as the text highlights the various types of business organizational structures and accompanying liability limitations. Hamilton also addresses the importance and enforceability of various types of contracts. The book culminates with an overview of employment law. Hamilton not only addresses the National Labor Relations Board process for air carrier labor disputes, but also thoroughly summarizes holistic employment requirements, such as compliance with the Fair Labor Standards Act, Occupational Safety & Health Act, Equal Employment Opportunities Act and Americans with Disabilities Act. When legal issues and statutes are addressed, Hamilton does an effective job of interspersing key legal issues with descriptions of their pragmatic application and case study examples.

Unfortunately, the book does not address many specific regulatory issues associated with 14 CFR. As a result, use of this book in an aviation law course may need to be accompanied by other regulatory-centric texts. Otherwise, you are likely to find this book a valuable addition to any aviation law or management course.

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### Companion Texts

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A companion text is one that enhances learning in the classroom, but may or may not be a required text for the course. It's a resource. These are helpful books for the instructor and the student.

#### *For Human Factors*

A Human Error Approach to Aviation Accident Analysis: The Human Factors Analysis and Classification System (Douglas A. Wiegmann & Scott A. Shappell)

#### **About the Authors**

Dr. Shappell is an internationally renowned expert and a highly sought after consultant and speaker in the fields of human factors, systems safety, error management, and accident investigation. He formerly served as Human Factors Branch Chief at the U.S. Naval Safety Center and as a human factors accident investigation consultant for the Joint Service Safety Chiefs. He has published over 50 papers in the fields of human error analysis and accident investigation, workplace injuries, and fatigue. Dr. Douglas A. Wiegmann is a tenured professor in the Department of Human Factors at the University of Illinois in Urbana-Champaign. He is an internationally recognized expert in the fields of human error analysis and accident investigation, and has formerly served as an aviation psychologist for the U.S. Navy and an accident investigator for the U.S. National Transportation Safety Board (NTSB). Dr. Wiegmann was the official human factors consultant to the U.S. Department of Energy during the investigation of the August 2003 blackout and consultant to the Columbia Accident Investigation Board during their analysis of the causes underlying the crash of the NASA space shuttle. (author descriptions were those available on amazon.com for this text)

### **Publisher Information**

Paperback: 184 pages

Publisher: Routledge; 1<sup>st</sup> edition

ISBN-13: 978-0754618737

Average Customer Review (Amazon): 4.3

Paperback: \$31.45 (Amazon Prime); Kindle: \$20.45 (Amazon)

### **Usefulness and Recommendations** five out of five airplanes

Human factors are both physiological and psychological. It's easy to find information on human physiology, and perhaps many instructors in human factors focus more strongly on physiology, because students can better relate to what they can see, rather than what they can imagine. This text is not about human physiology, even though the authors assume the reader understands how body and mind are integrated in task completion. I have a great deal of respect for the authors, because they tackled a sometimes contentious subject by presenting various perspectives of human error. Because I use this text as a companion text in my human factors course, I'm not confined by the structure of this text. That's why I recommend that you start with Chapter 2 and follow it with Chapter 3. So many instructors focus too heavily on Reason's model of latent and active failures, without asking the question, "Should I believe this is the only way to explain error?"

I had the privilege of hearing about HFACS from a presentation given by Shappell and Wiegmann at the 11<sup>th</sup> International Symposium on Aviation Psychology in 2001. Their presentation changed the way I looked at everything. If you use this text at all, be sure that your students understand the authors' arguments in Chapter 2. It is imperative that each student is encouraged to study the pros and cons of Reason's Swiss Cheese Model. It will be important to define terms and test your students' understanding of those terms. In many collegiate aviation programs, deeper exposure to philosophical ideas is not mandatory. However, if your students hope to understand this text or texts by Sidney Dekker, they will need your help in understanding the terms. I know this text will enhance your course.

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Human Performance and Limitations in Aviation (3rd ed.) (R. D. Campbell & M. Bagshaw)

### **About the Authors**

The late Ron Campbell, Executive Chairman of AOPA UK, was a member of the ECAC Working Group and JAA Flight Crew Licensing Committee responsible for the harmonisation of pilot training and licensing in Europe. Pamela Campbell, who has also contributed to the book, is a former commercial pilot and flying instructor and is currently the International AOPA delegate on the JAA Flight Crew Licensing Committee. Michael Bagshaw is Head of Medical Services for British Airways. He is a current professional pilot, flying instructor and examiner, and a recognised authority on human factors in aviation. He was formerly Senior Medical Officer Pilot and specialist in aviation medicine at the RAF Institute of Aviation Medicine, Farnborough, UK.

### **Publisher Information**

Paperback: 206 pages

Publisher: Blackwell Publishing; 3<sup>rd</sup> edition

ISBN-13: 978-0632059652

Average Customer Review (Amazon): 5

## Usefulness and Recommendations five out of five airplanes

If possible, I recommend that you integrate points of view from persons outside the United States. After serving as a reconnaissance staff officer in the North Atlantic Treaty Organization (NATO) Central Region Headquarters at Ramstein Air Base, Germany, I am more welcoming of other views. Researchers and subject matters experts from each country seem to read journals and professional papers from others within the same country. This leads to differences in focus and concern among and between those most published within each language group. So I suggest that we include different points of view.

The science of this text is not altogether different from what you would find in a text authored by an American. The section on Alcoholism is in some ways different, because of the nature of drinking in the United Kingdom. The number of units of alcohol permissible for a man or woman in the UK is slightly higher than that recommended for an American male or female. If for no other reason that you might use this text, it is important for students to understand the differences in safe consumption rates of alcohol by ethnicity and geographical region. If you also teach Crew Resource Management, you'll enjoy Chapter 8, *Avoiding and Managing Errors: Cockpit Management*; Chapter 9, *Personality*; and Chapter 10, *Human Overload and Underload*. Therefore, this text can enhance both a Human Factors course and a Crew Resource Management course.

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### *For Safety or Crew Resource Management*

#### Darker Shades of Blue: The Rogue Pilot (Tony Kern)

##### **About the Author**

Tony Kern is the author of seven textbooks in the fields of human error, airmanship, professionalism, and organizational culture. Kern is a retired Air Force Command Pilot, having served in the military for 20 years in various assignments including B-1B Chief of Standardization and Chair of the Air Force Human Factors Steering Group. Kern is a regular contributor to *Skies* and *Vertical 911*. He is a regular guest aviation expert on national radio and television programs, including the Discovery Channel, NBC Nightly News, and 48 Hours. Kern holds a Doctorate in Education in Educational Administration from Texas Tech University, and a Master's Degrees in both Public Administration and Military History. He currently serves as CEO of Convergent Performance, a consulting firm specializing in human performance and aviation.

##### **Publisher Information**

Paperback: 248 pages

Publisher: Convergent Books; 1<sup>st</sup> edition (2006)

ISBN-13: 978-0977821303

Average Customer Review (Amazon) 4.7

Rent Price (Amazon) Not Available; Buy Used (Amazon Prime) \$21.94; Buy new (Amazon Prime) \$21.95

## Usefulness and Recommendations five out of five airplanes -Excellent

*Darker Shades of Blue* is a rare gem among aviation textbooks. Using a highly-relatable and interesting storytelling approach, Kern draws upon his extensive aviation experience to captivate his readers. The book is reminiscent of the tone and approach used in the popular human error text, *Set Phasers on Stun: And Other True Tales of Design Technology, and Human Error* by Steven Casey. In similar fashion, Kern's book is an easy read and will keep even the most challenging students interested in the topic.

In the book, Kern expertly outlines the importance of aviation professionalism through extensive case studies that outline the impacts of aircrew hazardous attitudes, poor aeronautical decision-making, and role of organizational influences on aviation safety. Kern prescribes pragmatic solutions to combat individual and organizational “rogue” behavior in aviation. In one such case study, Kern provides an in-depth analysis of the key players, events, and influences surrounding the notable 1994 airshow crash of USAF B-52 *Czar 52* at Fairchild AFB, Washington.

The book’s value is demonstrated across a broad spectrum of aviation courses including aviation safety, ethics, aviation management, and flight instruction. I regularly use Kern’s text in my introductory aviation safety course to highlight key safety concepts such as the accident error chain, organizational influences, hazardous attitudes, aircrew discipline, and aeronautical decision-making. The book is well formatted and rife with rich content to create meaningful learning materials, presentations, or class discussion topics for students at all Bloom’s Taxonomy of Learning levels.

In my opinion, Kern’s *Darker Shades of Blue* is a benchmark text in aeronautical decision-making, error management, and aviation professionalism. It is a rare page-turner that will keep students interested throughout any course. A representative sample of Kern’s work can be read at [http://sbfpd.org/uploads/3/0/9/6/3096011/darker\\_shades\\_of\\_blue.pdf](http://sbfpd.org/uploads/3/0/9/6/3096011/darker_shades_of_blue.pdf) (used with permission).

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The Limits of Expertise: Rethinking Pilot Error and the Causes of Airline Accidents (R. Key Dismukes, Benjamin A. Berman, & Loukia D. Loukopoulos)

#### **About the Authors**

Dr. Dismukes is Chief Scientist for Human Factors in the Human Factors Research & Technology Division at NASA Ames Research Center. His current research addresses cognitive issues involved in the skilled performance of pilots, their ability to manage challenging situations, and their vulnerability to error; prospective memory; and management of attention in concurrent task performance. Captain Berman is a senior research associate at San Jose State University/NASA Ames Research Center and flies the Boeing 737 for a major air carrier. He is the former Chief of Major Investigations of the U.S. National Transportation Board, where he previously led the Operational Factors Division, served as a member of the major accident go-team responsible for flight operations, and managed safety studies. Dr. Loukopoulos is a Senior Research Associate at NASA’s Human Factors Research and Technology Division. She currently resides in Athens, Greece where she serves as a human factors consultant to the Greek Air Accident Investigation and Safety Board and where she served on the Helios Airways 2005 accident investigation. She also continues her collaboration with NASA through the San Jose State University Foundation.

#### **Publisher Information**

Paperback: 364 pages

Publisher: Routledge

ISBN-13: 978-0754649656

Average Customer Review (Amazon): 5

Kindle: \$31.16; Hardcover: \$89.00; Paperback: \$22.19

**Usefulness and Recommendations** ★★★★★ five out of five airplanes

I ran into Key Dismukes at the 2007 International Symposium on Aviation Psychology and informed him that I was using his text as a companion to the course text in Crew Resource Management. He said that was exactly what he and the other authors had intended. Twenty accidents, one per chapter, are presented, with Chapter 21 examining the converging themes in all the chapters.



Each chapter balances an NTSB aircraft accident report with human factors analysis by three notable researchers from NASA Ames. Instead of taking the easy way out and pinning the blame on the pilots, the authors tried to determine if other events from within the system contributed to errors, misunderstandings, fatigue, stress, and other psychological factors in the incident or accident. The authors ask questions that requires the reader to analyze the information given, and then decide if there might be alternative explanations for what happened.

For a better examination of the facts in each chapter, I have students determine which of the NOTECHS behavioral markers applies (See, Flin, R., Martin, L., Goeters, K-M, Hormann, H-J, Amalberti, R., Valot, C., & Nijhuis, H. (2003). Development of the NOTECHS (non-technical skills) system for assessing pilots' CRM skills. *Human Factors and Aerospace Safety* 3(2), 95-117.) I create teams of four. The first person characterizes the chapter's accident from the NTSB's point of view. The second person characterizes the same accident from the authors' points of view. The third person names the NOTECHS behavioral markers not present in the account, and the fourth person shares his or her explanation for why the missing behavioral markers were missed.

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The Multitasking Myth: Handling Complexity in Real-World Operations (Loukia D. Loukopoulos, R. Key Dismukes, & Immanuel Barshi)

#### **About the Authors**

Dr. Loukopoulos has a PhD in Cognitive Psychology from the University of Massachusetts and an Aerospace Experimental Psychology designation from the United States Navy. She spent 6 years on active duty as an aviation psychology officer in the Navy before becoming a Senior Research Associate at NASA Ames' Human Systems Integration Division. She currently resides in Athens, Greece where she is a human factors consultant to the Hellenic Air Accident Investigation and Aviation Safety Board and was a member of the team that investigated the major aircraft accident that took place outside Athens in 2005. She is involved in a number of aviation human factors research and teaching activities, through NASA Ames Research Center/San Jose State University Foundation, the Hellenic Institute of Transport, and the Hellenic Air Force Safety School. Dr. Dismukes is Chief Scientist for Aerospace Human Factors in the Human Systems Integration Division at NASA Ames Research Center. His research addresses cognitive issues involved in the skilled performance of pilots and other experts, their ability to manage challenging situations, and their vulnerability to error. Current research topics include prospective memory (remembering to perform deferred intentions), management of attention in concurrent task performance, pilots' use of checklists and monitoring, and training crews to analyze their own performance. Previously, Dr. Dismukes was Director of Life Sciences at the Air Force Office of Scientific Research. He received his PhD in biophysics from Pennsylvania State University and conducted postdoctoral research at the Johns Hopkins University School of Medicine and the National Institutes of Health. He has published several books and numerous scientific papers in basic and applied psychology and neuroscience, and has written on the implications of science and social policy for the public. He holds airline transport pilot, B737 and Citation type, and glider instructor ratings. Dr. Barshi is a Senior Principle Investigator in the Human-Systems Integration Division at NASA Ames Research Center. His current research addresses cognitive issues involved in the skilled performance of astronauts, pilots, and flight/air traffic controllers, their ability to manage challenging situations, and their vulnerability to error. Among the topics investigated by his research group are spatial reasoning, decision making, risk assessment, communication, and skill acquisition and retention. The results of his work have been implemented in operational procedures and training programs in space, aviation, medicine, and nuclear facilities. Dr. Barshi holds PhDs in Linguistics and in Cognitive Psychology. He has published papers in basic and applied psychology, linguistics, and aviation. He holds Airline Transport Pilot certificate with B737 and CE500 Type Ratings; he is also a certified flight instructor for airplanes and helicopters, with over 30 years of flight experience. (Author information was copied from the Amazon.com website)

## **Publisher Information**

Series: Ashgate Studies in Human Factors for Flight Operations

Paperback: 202 pages

Publisher: Routledge; New edition

ISBN-13: 978-0754679974

Average Customer Review (Amazon): five stars

Kindle: \$39.46; Hardcover: \$56.07-\$139.93; Paperback: \$38.11-\$49.95

## **Usefulness and Recommendations** five out of five airplanes

This text is a must, because it provides an intelligent commentary on why multitasking is a myth. FAA-Handbook-8083-9a gives a definition of multitasking, but the FAA insists that multitasking is attention switching and simultaneous performance, but the actual description of multitasking is concurrent task management, not the performance of a task. Simultaneous performance seems to be better explained through muscle memory, rather than a function of multitasking. The dash 9a, allows instructors to insist that their students multitask, without helping them to understand what that means. It is nearly as unproductive as having an instructor tell his or her student they have lost situation awareness, without telling the student what part or parts of situation awareness he or she has lost.

I recommend that you spend time on Chapter two, *What is Multitasking and How is it Accomplished?* before moving on to chapters 3 and 4. Chapter 3 describes the ideal in task performance, if things go as planned, while Chapter 4 describes what might happen when things do not go as planned. Chapter 5 gives the reader an analysis of concurrent task demands and Chapter 6 applies the research.

I don't feel compelled to use every chapter, but I do spend enough time in the text, to help students understand why concurrent task management is important to crew operations in flight. My students write a paper on what they have learned about concurrent task management from their experience reading portions of the book. This book can be used in the Crew Resource Management course.

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## Safety Differently: Human Factors for a New Era (Sidney Dekker)

### **About the Author**

Sidney Dekker is currently a professor at Griffith University in Brisbane, Australia, where he runs the Safety Science Innovation Lab. Best-selling author of many books in human factors and safety, he has recently been active flying the Boeing 737NG as a part-time airline pilot (from the book).

Sidney Dekker is Professor of Human Factors and Flight Safety, and Director of Research at the School of Aviation, Lund University, Sweden. He has previously worked at the Public Transport Cooperation in Melbourne, Australia; the Massey University School of Aviation, New Zealand, British Aerospace, UK, and has been a Senior Fellow at Nanyang Technological University in Singapore. His specialties and research interests are system safety, human error, reaction to failure and criminalization, and organizational resilience. He has some experience as a pilot, type trained on the DC-9 and Airbus A340 (from the Amazon.com website).

I met Sidney in 2001 at the International Symposium on Aviation Psychology in Columbus, Ohio. I attended his pre-symposium session on human factors and system safety. His enthusiasm was infectious. In 2005, I started using *Ten Questions about Human Error* in my Human Factors and Crew Resource Management courses. In 2014, CRC Press asked me to review Sidney's manuscript for *Safety Differently*.

### **Publisher Information**

Paperback: 312 pages

Publisher: CRC Press; 2<sup>nd</sup> edition

ISBN-13: 978-1482241990

Average Customer Review: 4 out of 5 stars

Kindle: \$31.46; Paperback: \$30.82-\$40.89

### **Usefulness and Recommendations** five out of five airplanes

I would not teach Human Factors or Crew Resource Management without using one of Sidney Dekker's books as a companion text. *Safety Differently* is the follow on for *Ten Questions about Human Error*. It is best that one reads *Ten Questions* before *Safety Differently*, in order to fully understand Dekker's references. However, this is not a required way forward, just a recommendation.

The table of contents is misleading. There are only eight chapters, but they are packed with information. In this text, Dekker makes it easy for academics to use the material on visual aids. Many of the more important points being made are already in bullet form. Terms are defined more fully than they were in *Ten Questions*. What has been difficult in earlier texts by Dekker is his assumption that readers would look up terms they didn't know. He relies on philosophical terms to help readers understand why the NTSB behaves as it does. If students are not familiar with special terms, I suggest encouraging them to always look up terms, rather than waiting for instructors to define the terms. I also suggest that instructors take time to let students look up terms on their smart devices during class time. Linda Nilson, in *Creating Self-Regulated Learners*, tells us that our students are more likely to blame instructors if they don't understand the material, rather than taking personal responsibility to learn on their own. If your students are going to understand Dekker, you must insist that they take time to learn on their own, with classroom instruction as a backup. I use the "flipped classroom" style, where homework is done in class, which allows time for students to look up terms for themselves. I even post a student at the keyboard at the front of class, allowing that student to perform keyword searches on any terms she or he does not know. This activity continues throughout the lecture time. Students switch attention between what I'm teaching and what the student at the keyboard is putting on the front screen.

I think our students want to learn, but they haven't been trained on how to do that in K-12. Perhaps the reason why the Amazon.com rating for this book is 4 out of 5 stars is because self-regulated learning is a must when trying to understand this author. This is why I recommend this book as a companion text and not a main text. It is easier to use what you need to from the book, rather than make students read it from start to finish. If you are still having trouble, I suggest showing several of Sidney Dekker's videos through YouTube.

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Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations (2nd ed.) (Geert Hofstede)

### **About the Author**

*Geert Hofstede* received a master's degree in Mechanical Engineering from the Technical University at Delft and a doctorate in Social Psychology from the University of Groningen, both in his native Netherlands. His professional career includes experience as a worker, foreman, plant manager, chief psychologist on the international staff of a multinational corporation, academic researcher, director of human resources of another multinational, and university professor. He has been affiliated with IMD (Lausanne, Switzerland), INSEAD (Fontainebleau, France), the European Institute for Advanced Studies in Management (Brussels, Belgium), IIASA (Laxenburg Castle, Austria), and the University of Hong Kong. He is Professor Emeritus of Organizational Anthropology and International Management of Maastricht University, the Netherlands. He is currently a Senior Fellow of the Institute for Research on Intercultural Cooperation (of which he was a

founder) and of the Center for Economic Research, both at Tilburg University, the Netherlands. He has lectured at universities and consulted for institutions and companies around the world. Dr. Hofstede's books have appeared in seventeen languages, and his articles have been published in social science journals around the world. He is among the top 100 most cited authors in the Social Science Citation Index (As seen on the Amazon.com website).

### **Publisher Information**

Paperback: 616 pages

Publisher: SAGE Publications, Inc. 2<sup>nd</sup> edition (2003)

ISBN-13: 978-0803973244

Average Customer Review (Amazon): 4 out of 5 stars

Kindle: \$31.31-\$87.35; Hardcover: \$48.14-\$168.48; Paperback: \$33.11-\$91.95

**Usefulness and Recommendations**  five out of five airplanes

If you really want to understand the differences among nations, you need to read everything Hofstede has written on Power Distance, Uncertainty Avoidance, Individualism and Collectivism, Masculinity and Femininity, and Long vs. Short-term Orientation. If you want to use Hofstede's work in your Human Factors and Crew Resource Management courses, you need to download the *CultureGPS Professional* app or the *CultureGPS Lite* app. The professional version allows you to establish a personal profile, using the 5D model, and then compare it to any of the nations in the world. This is useful when trying to determine whether you and a person from another nationality are more evenly matched. Hofstede's book explains more completely what each of the areas of the 5D model means. You can apply this to commercial airplane flight decks, or to board rooms in major corporations. If you traveling to another country on business, you can determine ahead of time on what issues you might agree and on what issues you might disagree.

Without actually going to another country, you can see how compatible you would be had you visited. This book will help you relate to students in your classroom from other countries. It will also help you discuss strategies for establishing flight deck agreement on how pilot teams will communicate with each other and with ATC. NTSB accident reports and ASRS reports can also be evaluated by using this text and the app.

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### *For Aviation Ethics*

Arts of Power: Statecraft and Diplomacy (Chas. W. Freeman, Jr.)

### **About the Author**

Chas. W. Freeman, Jr., has been a career officer in the U.S. Foreign Service, ambassador to Saudi Arabia during the Persian Gulf War, and assistant secretary of defense for international security affairs. He was a fellow at the United States Institute of Peace in 1994-95 and is the author of *Arts of Power: Statecraft and Diplomacy* (USIP Press) and *Diplomat's Dictionary* (USIP press) (From Amazon.com website).

### **Publisher Information**

Series: Cross-Cultural Negotiation Books

Paperback: 224 pages

ISBN-13: 978-1878379658

Average Customer Review: 4.5 out of 5 stars

Paperback: \$12.66

## Usefulness and Recommendations five out of five airplanes

When teaching ethics, it is important to equip students with the ability to stay clear of situations where one's ethics can be compromised by peer pressure or the pressure of the boss's unethical way of doing things. In order for employees to navigate through the ethics minefield, they need a way of protecting their interests, while avoiding situations that will jeopardize their interests.

A close friend advised that I use Freeman's book. It's easy to convert National Interests into Personal Interests. It's easy to focus on Personal Power, if you understand the nature of National Power. If you understand diplomatic maneuver in the political arena, you can use the same elements of maneuver in your work life. The exaction of concessions from other states can be applied to the exaction of concessions from other persons at work. Containment, détente, constructive engagement, estrangement, formation and dissolutions of ententes, maintenance of monopolies, domination, mutual restraint, and shared power are diplomatic maneuvers, but are also applicable in relationships among and between workers and teams of workers.

Many of my students are unaware of how complex the work environment can be, and how easy it is to compromise one's ethics right from the start. We can't keep telling our students to be ethical, unless we provide them with ways to stay ethical. This text will help our students stay clear of unethical behavior and might even be useful for faculty members who try to navigate among other faculty members and administration.

I created a complex scenario, which my students role-play over the course of weeks. They see how the elements of political maneuver can play out in an organization. They see how personal interests are challenged, and how persons with power play others. I suggest that you create a scenario as well, to test your students' knowledge and ability.

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## The Greatest Minds and Ideas of All Time (Will Durant)

### About the Author

It is difficult to adequately portray the life of Will Durant. He was a historian and philosopher, spanning the 19<sup>th</sup> and 20<sup>th</sup> centuries. He was 96 when he died in Cedars-Sinai Hospital in 1981. He and his wife wrote the 11 volume, prodigious work, *The Story of Civilization*. Their work spanned 110 centuries of human endeavor. He had plenty of critics, but despite their criticism, he and Ariel kept true to their perception of the story of humanity. They weathered two world wars, the Korean Conflict, Vietnam, political upheaval around the world, and the politics of academe. He earned his doctorate from Columbia University and also taught there. He focused on philosophy, writing the bestseller, *The Story of Philosophy*, republished by Simon & Schuster in 1926. The Durants earned enough from that book to fund their travels around the world, which proved to be the catalyst to their *The Story of Civilization* project.

### Publisher Information

Hardcover: 127 pages

Publisher: Simon & Schuster

ISBN-13: 978-0743235532

Average Customer Review (Amazon): 4 out of 5 stars

Kindle: \$14.99; Hardcover: \$17.68; Audible: \$4.49

**Usefulness and Recommendations** ✈✈✈✈✈ five out of five airplanes

If you need a reliable review of philosophical ideas, without reading the entirety of *The Great Books* collection, read this short work by Will Durant. Another book along the same line is Mortimer Adler's book, *Ten Philosophical Mistakes* or *The Great Ideas: A Lexicon of Western Thought*. You won't know as much as you need to, but you'll have a better idea of who in the Western tradition influenced how we think today. I keep these books nearby, and I have the entire *The Great Books* collection in my office. Rather than depend on the Internet for information, I value my collection of books.

I use Durant's book for quick reviews of philosophy, before I go into a lecture. It keeps my thinking fresh.

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**Book Reviews** – Constructive summaries of the quality, strengths, weaknesses, and impact of an existing, published book.

**Research Collaborative Abstracts** – A proposal abstract submitted for publication with the intent on attracting collaborators willing to join the author in the full study.

It is indexed by the EBSCO, Elsevier and ProQuest indexing services. The *CaRi* feature article review process incorporates a blind peer review by a panel of individuals who are active in the focus area of each manuscript. All other manuscripts are provided by the editors of the *CaRi*.

Authors should e-mail their manuscript, in Microsoft Word format, to the editor at [CARjournal@uaa.aero](mailto:CARjournal@uaa.aero). The 2016 *CaRi* Author's Handbook should be consulted for formatting guidance. Please see the *CaRi* website at [www.uaa.aero](http://www.uaa.aero) under *publications* for a copy of the guide.

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