The Right Stuff

Dr. Diane Damos examines the new US Congress legislation which specifies the attributes that Part 121 carriers must assess in their pilot selection and screening processes.

Public Law 111-216 (HR 5900), The Airline Safety and Federal Aviation Administration Extension Act of 2010, has two major sections, Title 1 and Title 2. Title 1 is concerned with airports. Title 2, "Airline Safety and Pilot Training Improvement," deals with several safety- and training-related issues. This article is concerned with Section 216 of Title 2, "Flight Crewmember Screening and Qualifications." Part of this section (216 a (2)) is remarkable because, for the first time, Congress has passed legislation specifying the attributes that Part 121 carriers must assess in their pilot selection systems. It reads as follows:

▪ *Rules issued under paragraph (1) shall ensure that prospective flight crewmembers undergo comprehensive pre-employment screening, including an assessment of the skills, aptitudes, airmanship, and suitability of each applicant for a position as a flight crewmember in terms of functioning effectively in the air carrier's operational environment.*

This section has the potential to alter significantly the selection process of many carriers, especially small regional carriers. Many Part 121 carriers will be faced with substantial start-up costs to comply with the new law, as well as with increased operational costs. Part 121 carriers, therefore, should be aware of some of the issues surrounding Section 216 a (2) and begin considering the implications of these issues for their company's screening and selection processes.

Section 216 a (1) requires the Federal Aviation Administration (FAA) to conduct a rule making process. A rule, in essence, states how the law should be understood and, consequently, implemented. As part of the rule making process, the FAA issues a Notice of Proposed Rule Making (NPRM). Individuals may submit public comments about the proposed rule, and the FAA is required to consider these comments before issuing the final rule.

The NPRM status of Section 216 a (1) is unclear. The FAA issued an Advanced NPRM for Section 217 in the spring with the corresponding NPRM scheduled to open for comments on October 5, 2011. No NPRM has been issued just for Section 216, and it is unclear if Section 216 and 217 are being considered together.

Above
New legislation has the potential to alter significantly the selection process of many carriers. Image credit: CTC Aviation.

The remainder of this article is my interpretation of this Section 216 a (2) based on approximately 40 years of experience in pilot selection. I am not a lawyer, and no one should interpret my comments as legal advice.

Screening and Selection

The first thing to notice about Section 216 a (2) is that it uses the term "screening", not "selection." To people like me who have worked in pilot selection for many years, the use of this term is surprising; screening and selec-

tion are different types of processes. Screening is frequently associated with assessments that are scored pass/fail and simply indicates that a candidate meets a minimum requirement. In aviation, screening is traditionally conducted on minimum qualifications. That is, applicants who are screened on a given attribute are examined to determine if they have or do not have the minimum amount of that attribute. For example, let's assume that a carrier requires a minimum of 100 hours of multi-engine flight time. Each candidate's flight time is examined to determine if he/she has the minimum amount of multi-engine time. If the candidate does not have at least 100 hours, he/she is eliminated from further consideration. This process is often referred to as "screening out." If the candidate has at least 100 hours of multi-engine time, he/she advances to the next step of the screening or selection process.

In contrast, selection is usually associated with quantifying the differences between candidates on some attribute. For example, assume candidates are required to take a test of spatial ability as part of the hiring process. Each candidate receives a score on the test. The candidates are rank ordered on the basis of these scores. Those candidates who score highest on the test (assuming there are no other selection instruments in the hiring process) receive a job offer.

This brings us back to Section 216 a (2), which requires pre-employment "screening" on skills, aptitudes, airmanship, and suitability for the operational environment (more about the definition of these terms shortly). Did the authors of Public Law 111-216 intend to reduce the Part 121 pilot hiring processes to a series of background checks to ensure that a candidate possesses the minimum qualifications? Probably not, given the remaining parts of the section. Did they intend to impose a pass/fail assessment process? Again, probably not, but time and the FAA will tell.

Section 216 a (2) requires air carriers to screen for skills. Which skills? In my experience, "skills" in a pilot selection context usually refers to stick-and-rudder skills but may also refer to cockpit resource management (CRM) skills. If "skills" does indeed include stick-and-rudder skills, then the regional air carriers that have eliminated their simulator evaluation need to begin thinking about how to assess stick-and-rudder proficiency. If "skills" also refers to CRM skills, then the numerous questions surrounding testing and evaluating these skills will need to be identified and resolved quickly.

Air carriers also will be required to screen for aptitudes. What is an aptitude? The Penguin Dictionary of Psychology (2001) defines aptitude as "a measurable present ability which is interpreted as indicating that...the person's performance will improve markedly with additional training." This raises an interesting question. Why would any air carrier test for an aptitude? The applicants are all experienced pilots with at least a commercial certificate. Is the hiring process designed to allow candidates to demonstrate their skills and knowledge or to demonstrate that they will be able to learn new skills and information? Let's take stick-and-rudder skills. Is the purpose of a simulator evaluation to assess a candidate's level of skill or is it to determine if a candidate will be able to learn new skills?

Notice that air carriers will be required to "screen" for airmanship. What exactly is airmanship? The statute provides no definition of this term. I know of no accepted definition of airmanship in the scientific community. A search of the web revealed a plethora of definitions. The FAA's website, however, did not have a definition. I then contacted the FAA on September 5th through their website and asked for a definition. I have not received a reply. All of the definitions I found on the web involved stick-and-rudder skills, which brings us back to the need for a simulator evaluation.

Suitability

The most difficult to interpret part of Section 216 a (2) is the last phrase "suitability of each applicant for a position as a flight crewmember in terms of functioning effectively in the air carrier's operational environment." Initially, I thought this phrase referred to "organizational fit." This term usually refers to the degree to which an applicant shares an organization's values and goals. To my knowledge, no US air carrier has ever used a test of organizational fit to select pilots. All of the organizational fit tests I have encountered were designed for entry level, white-collar workers, such as sales personnel. These hardly seem appropriate for pilots.

Above
"Skills" in a pilot selection context usually refers to stick-and-rudder skills but may also refer to CRM skills.
Image credit: Air France.

I asked three of my colleagues to read Section 216 a (2) and interpret the last phrase. One thought that this phrase refers to psychopathology. The problem here is that tests of psychopathology are classified as medical tests in the US. Under the Americans with Disabilities Act of 1990, an employer cannot administer a psychopathology assessment until an applicant has successfully completed the hiring process and has been given what is known as a contingent job offer. If the intention of Section 216 a (2) is to force air carriers to include psychopathology tests in their selection process, then this section is in direct conflict with

the Americans with Disabilities Act of 1990, a major civil rights law.

The second colleague thought that this phrase refers to personality testing. The US has no law that prohibits personality testing per se, and it is used in selection systems for certain professions. Unlike European air carriers, however, American carriers have had very limited success using personality tests for pilot selection. Since World War I, the US military has attempted to develop a personality test that predicts success either in flight training or in combat. Such a test has yet to be developed. The US military found that biographical inventories were predictive of performance in training, but federal regulations pertaining to their scoring have limited the recent usefulness of these assessments. Although some vendors have claimed to use their personality assessments for commercial pilot selection, I am unaware of any objective, verifiable data that supports these claims.

The third colleague interpreted this phrase as referring to CRM skills. As I mentioned earlier, selection based on evaluating two candidates simultaneously is fraught with difficulties.

This leaves us with a phrase that has four different meanings for four professionals, all of whom have extensive experience with pilot selection. The FAA will have to interpret this phrase in some meaningful, unambiguous manner that does not lead to a violation of any US statutes or guidelines.

Comments

Where do we go from here? I suggest reading the comments for Section 217 (Pilot Certification and Qualification Requirements) on the NPRM site. If Section 216 and 217 are being considered together, the posting and the comments may point to potential legal pitfalls. In any case, readers directly involved in pilot selection and hiring may be able to glean information that will suggest potential changes to their hiring process.

Additionally, carriers should become more knowledgeable about pilot selection systems. Pilot selection has been conducted in the US since 1917, and there are literally thousands of documents dealing with how pilot selection systems work, the types of selection instruments that have proved useful, and the legal issues surrounding selection. Some of this material is more appropriate for the human resources department, but much is useful to those directly involved with interviewing and testing pilot applicants.

Changing a selection system can be an expensive process and is always time consuming. Part 121 air carriers, therefore, are well advised to give themselves plenty of lead time to make changes in their selection system. Careful planning and a thorough knowledge of pilot selection will pay in the construction of a cost-effective, legally defensible system. cat

About the Author

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