Sparky's Airmanship and Professionalism Framework

ASU Aviation

decision-making

situational awareness

flight's purpose & plan
environment & terrain
aircraft systems
leadership & teamwork
weather
risk assessments
self: capabilities/limitations

communication
skill & proficiency
flight discipline
professionalism

pills of knowledge

Framework adapted from Kern's Airmanship Model, 1997

technology.asu.edu/aviation
Aimpoint – Airspeed: An Approach to Airmanship & Professionalism

in Undergraduate Aviation Education

Randy Gibb
Associate Professor, ASU
Chair, Human & Environmental Systems
Randall.Gibb@asu.edu

This initiative creates the foundation for airmanship and professionalism in the undergraduate aviation student. Given the projected numbers of pilots required in the next decade, safety education and professionalism must begin immediately in the development of future commercial pilots. The aviation industry needs pilots to maintain the highest levels of professional conduct in and out of the cockpit. The Airmanship Model is used as the basis of the framework and engages students and instructors in discussions and performance evaluations. Professionalism is the foundation, stressing individual accountability and ownership. Embedded within professionalism are flight discipline, skill and proficiency, and communication. Seven personal knowledge pillars then link the foundation with the framework’s outcomes, situational awareness and decision making. This model helps to develop airmanship and professionalism, acting as both a process and product and is the individual structure that crew resource management builds upon.
AIMPOINT - AIRSPEED

Approach to Airmanship & Professionalism in Undergraduate Aviation Education

Randy Gibb
Associate Professor, ASU
Chair, Human & Environmental Systems
Randall.Gibb@asu.edu
Weather
Wind & snow

Fatigue
Multiple -leg day

Decision-making
Runway landing calculations
Policy
Landing at Airport of Safe & Successful

Airmanship

Professionalism
VISION

Create airmanship and professionalism in undergraduate aviation students
College students are in a unique phase of life
- Maturity
- Frontal lobe
- Social distractions
- Engagement & effort
- Financial issues
- Prioritization of responsibilities
Concerned with level of professionalism of their air crew
1. Professionalism
2. Safety Culture
3. Airmanship
4. Light Business Plane safety
5. Talent Pipeline 😊
6. Impact of Technology
7. Public Policy
8. Airport Safety
9. Fatigue
10. Task Saturation
Capt. Dave McKenney (United), ALPA’s director of Pilot Training Programs, kicked off a lively discussion of “airmanship,” which can mean different things to different people. He warned, “The aviation industry has not fully defined the knowledge, skills, and behaviors associated with ‘airmanship’ for current operations. As a result, operators have not fully modified pilot training nor developed the mentoring required to develop airmanship skills needed to adjust to the changes required by today’s highly automated aircraft, or the experience of entry-level pilots.”

McKenney offered his own draft definition: “Airmanship is a measure of a pilot’s awareness of the aircraft and its flight environment and of her or his own capabilities and behavioral characteristics, flying skills, combined with good judgment, wise decision-making, attention to detail, and a high sense of self-discipline.”
The largest untapped resource in the aviation world today is the difference between the levels at which we are currently operating and the levels we are capable of.

The gap is not closed by meeting minimum regulatory requirements; it is closed through enhancing professionalism.

Tony Kern, Bombardier Safety standdown, Brazil, Aug 2013
ASU Aviation

Sparky's Airmanship and Professionalism Framework

decision-making

situational awareness

- flights purpose & plan
- environment & terrain
- aircraft systems
- leadership & teamwork
- weather
- risk assessments
- self capabilities/limitations

pillars of knowledge

communication

skill & proficiency

flight discipline

professionalism

Framework adapted from Kent's Airmanship Model, 1997

technology.asu.edu/aviation

Gibb 2014 Aimpoint-Airspeed Presentation
OBJECTIVE OF THE MODEL

Create a framework for discussions, perspective, and assessment in ASU classrooms and ATP aircraft on aviation safety and airmanship regarding what it means to be a professional aviator
The experiential manner in which pilots progress through each foundation, pillar, and capstone to learn, develop, demonstrate, practice, and discover airmanship and professionalism.
PRODUCT

Safe & Successful Flying
Three Levels of Professionalism

- Selflessness
- Professional Image
- Professional Engagement
- Continuous Improvement
- Professional Ethics
- Vocational Excellence

Levels:
- L I
- L II
- L III

Source: Kern, 2011
Mediocrity can become an accomplice toward unsafe practices not because of any one intentional act but allowing one’s level of professionalism to erode over time, thus cracking the airmanship foundation
Accidents do not occur because people gamble and lose, they occur because people do not believe that the accident about to occur is at all possible.

Wagenaar & Groeneweg, 1987, p. 596
Airmanship is...

• the individual structure upon which CRM builds
• the process a pilot makes toward safe flight; and following that process time after time is the making of a professional pilot
EDUCATIONAL EXPERIENCES

Aerodynamics
Meteorology
Power Plants
Instrument Navigation
Air Traffic Control
Aviation Law
Airfield Operations
Weekly Safety Mtgs
Each Flight
Human Factors
- Normal accidents
  
- Active & latent errors
  
- Normalization of deviance

- Drift into failure
  1. Banality
  2. Incrementalism
  3. Competing resources

- Borrow from safety

- Blizzard of small judgments…lots of bad little choices
  1. Make money
  2. Be safe (safety is never first)
Professionalism must begin on Day-1 of a college student’s journey toward becoming a commercial airline pilot

Kern, 2011

Four Essentials of a Professionalism Culture

1. Check for competence
2. Train for excellence
3. Practice precision
4. Picture perfection

Gibb 2014 Aimpoint-Airspeed Presentation
Professionalism and the next generation of commercial airline pilots

College → Compliance → ‘Normalization of Excellence’

Continuous Improvement
Greater prudence is needed rather than greater skill

Wilbur Wright, 1901
What would you do?

Learning scenario based on a 2007 regional airline incident involving

- Weather
  - Wind & snow
- Fatigue
  - Multiple -leg day
- Decision-making
  - Runway landing calculations
  - Policy
CASE STUDY

What would you do?
Learning scenario based on a 1999 accident involving

- Fatigue
- Situational stress
- Decision making
- Un-stabilized approach
- Flight Discipline
- Procedures
- Communication
- CRM
- Weather