



The NextGen Aviation Professional And Simulation



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- **Who is the NextGen Aviation Professional?**
- **The Changing Aviation Industry**
- **The Role Simulation Needs to Play**

Who are the NextGen Aviation Professionals?

Go back ~ 20 or so years

- East-West Germany reunited
- Nelson Mandela elected President in South Africa
- West Germany avenges a loss to Argentina 4 years earlier by winning the World Cup
- Top songs
 - Sinéad O'Connor “*Nothing Compares to You*”
 - Metallica “*Nothing Else Matters*”
 - U2 “*One*”
- Digital revolution begins
- Internet starts to emerge
- Today’s emerging aviation professionals are born

Today's NextGen Aviation Professional

- Has always had the Internet, cell phones, instant access to information
 - Connected 24/7/365
 - Reputation management
 - Social networking (Facebook, MySpace, Twitter, etc)
 - “Digital Native”
 - Reacts to different stimuli than previous generations
- Learns by “hands-on,” through gaming theory
 - “*Death by powerpoint*” and CBI/CBT are becoming relics
 - Would rather *do* than *read*, if they do read, it's via technologies like Kindle® versus hardback/paperback
 - Tactile versus classrooms
- Digitally adept

Aviation Economic Environment

- Economic landscape has changed
 - Most aviation companies do not have traditional retirement plans
 - Job security....not!
 - Government jobs are being threaten by budget pressures
 - Privatization vs inherently-governmental
 - Loyalty has become a one-way street
- Career paradigms have shifted for the NextGen Aviation Professional
 - Generation of *Choice*
 - More interested in here and now, than career
 - “Means to an end”

The Changing Aviation Environment

- Uncertain budgets and resources allocated for training
- Some advances in technology are shrinking *cradle to grave timelines*
 - Significant impacts to investment portfolios (training, equipment and software)
- Industry tends to promote *unproven* technology as the pancea to current ills. Sounds good, but risks very high (cost, schedule, etc)
 - Investment portfolios and ROI timelines have shrunk
 - DOT IG report on cutting edge aviation technologies (WAAS, LAAS, etc)

The Changing Aviation Environment

- NextGen/SESAR
 - Moving from ATC to ATM
 - Mix of classic airspace to NextGen airspace
 - Collaborative decision making between pilots & ATC/ATM
 - Challenges to existing career fields...UAVs
 - *Computers-in-the-loop*
 - Trusting computer-based decisions over human intuition
- Track record of aviation professional careers fields
 - Loss of pay, longer hours, fewer retirement benefits
 - Bankruptcies
 - Uncertain economic situation and impact on aviation industry
 - Terrorism and added security issues

Impact to Aviation Industry

- Higher training costs for the NextGen Aviation Professional
 - Keeping pace with CNS/ATM technological advances
 - Screening, wash outs, wash backs
 - Competition from other occupational career paths
- Work force management issues
 - Lack of predictable experience base in the future
 - Continuous training processes (higher throughputs and retraining)
 - Professional sports vs college sports analogy
 - Career versus limited time span

Today's challenge

- Re-engineer and adapt current teaching and training processes to emerging aviation professional's strengths
 - Should not expect them to adapt to “tried and proven processes”
 - “Unlearning” and re-teaching expensive, takes time and may lack appropriate stimuli to be effective
 - Lack of a professional training corps
 - Applicants can become bored and move on to other career paths
 - Impact of Awaiting Further Instruction status
 - Challenge traditional methods of delivery
 - From classroom, CBT, labs to laptop, web-based, networked
 - Develop and field effective cost-effective simulation/training systems
 - Getting ANSPs/governments to invest in educational technologies

Simulation

- Over the past three decades, simulation has
 - changed the face of training
 - become much realistic and interactive
 - ICAO 9625 standards
 - become very expensive
- Ultimate goals are to develop:
 - An aviation related thought process
 - Predictable responses to stimuli
- Needs to be tailored and delivered through a wide variety of media
 - Instead of technology driving training, start with required training objectives and then map technologies for efficient and effective delivery

Mapping simulation to the NextGen Aviation Professional's strengths

- Can change the learning environment
 - Realistic, effective, challenging
 - “*Do*” rather than watch or read (gaming theory)
 - Adapt methods of delivery to emerging technologies (i-Pods & i-Pads, etc)
- Allows instructional delivery tailoring to stimulate young aviation professionals
- Can provide near real-time feed back on student progress strengths/weaknesses
 - Can assess training effectiveness

Yesterday's Training Methods Are Not Working Going Forward

Today's Cyber Teenager – Tomorrow's Aviation Professional

