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 avenge a loss to Argentina 4 years earlier by winning the World Cup
- Top songs
  - Sinead 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 threatened 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 panacea 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**

- PC Workstation
- Cell/Camera Phone
- Network Playstation 3
- Wireless Laptop
- Multiplayer Gaming
- Video Conferencing
- Personalized News
- Reputation Management
- Online Learning
- Wireless PDA
- Email
- TV/Sat/TIVO
- MP3 Player/Wii