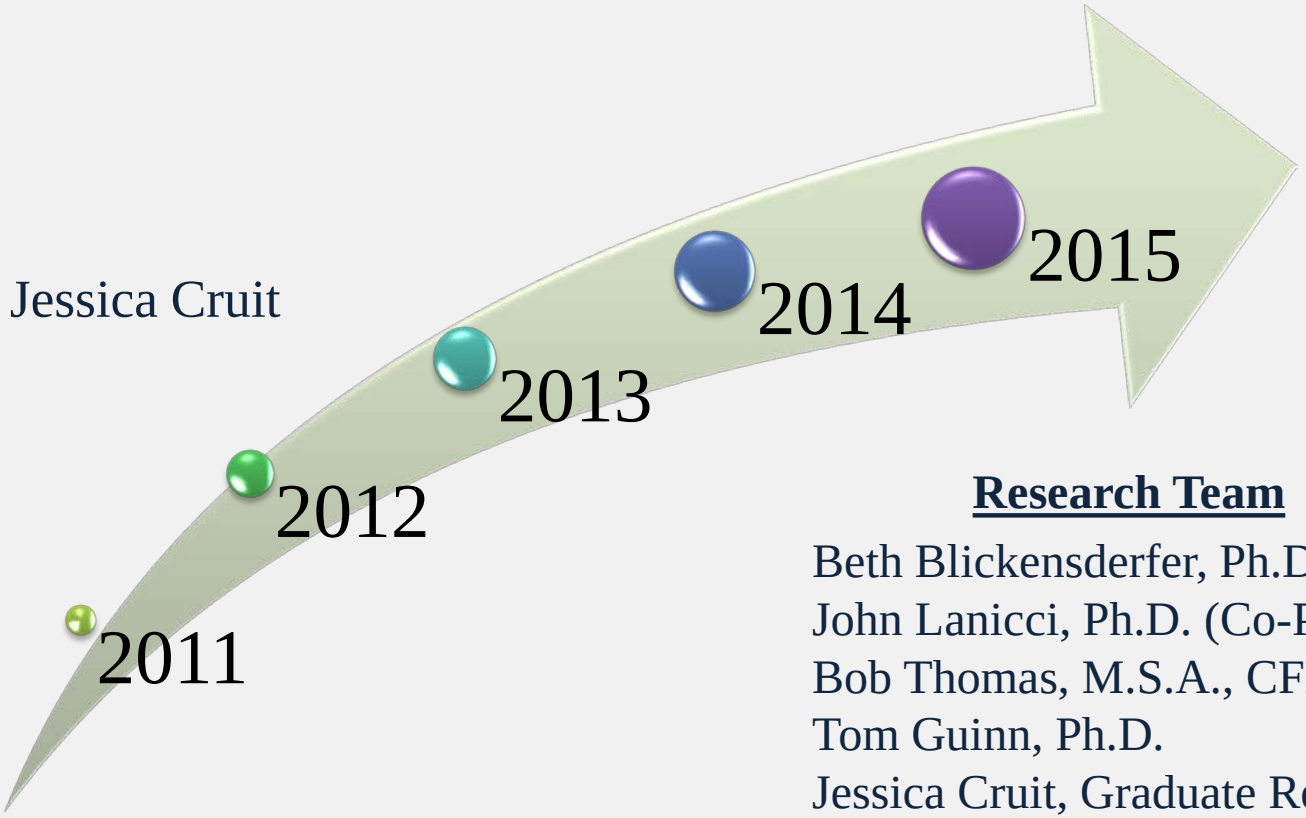
WTIC Research at Embry-Riddle Aeronautical University

Presented by: Jessica Cruit



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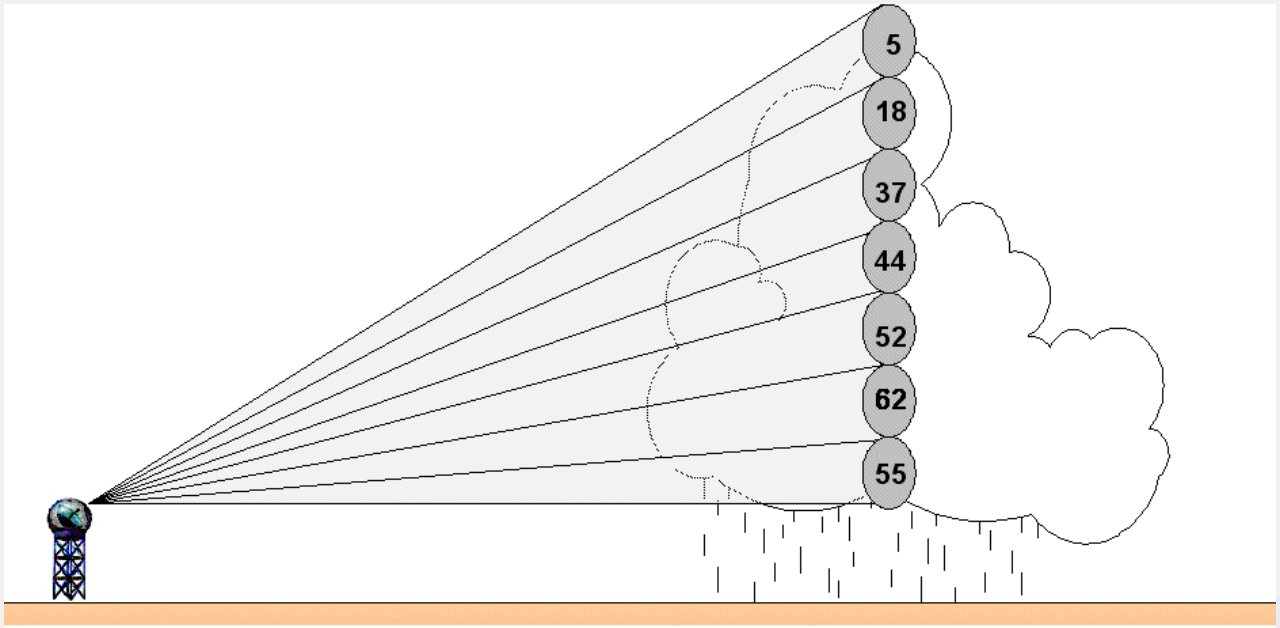

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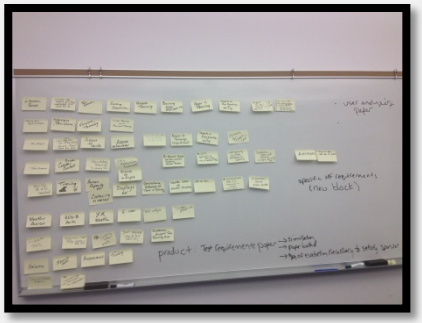
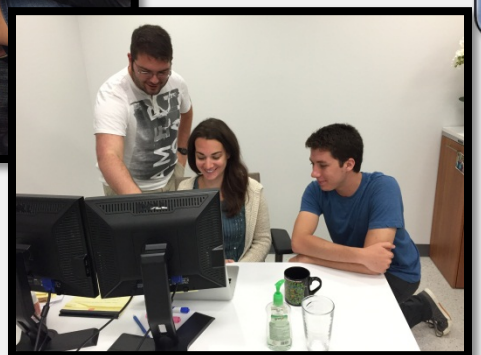




2011 **Designed** NEXRAD Convective Wx training module (Roberts et al., 2011)

2012 **Developed** NEXTRAD Course to train GA Pilots (Roberts et al., 2011)

2013 **Validated** NEXRAD Convective Wx training module with GA Pilots

2014 Transformed the NEXRAD course into an online training module (FAASafety.gov)

2015
-Developed 113 test questions to assess aviation wx knowledge of GA pilots
-Validating assessment with 300 GA pilots

2011-2013 NEXRAD Course

Needs Analysis

Pilot Discussion Boards, meetings, etc.

NEXRAD Course

2.5-hour instructor-based training course

Course Topics

Thunderstorms, Radar basics/Products, NEXRAD, Decision making

Results

All GA Pilots who took course earned higher knowledge test scores after taking the course than those who did not

2014 Online Training Module

Motivation: Dry PowerPoints aren't as effective as interactive online scenario courses in teaching pilots about wx

The Atmosphere

- **Thermosphere:** a thermal classification of the atmosphere. In the thermosphere, temperature increases with altitude.
- **Exosphere:** the outermost layer of the Earth's atmosphere. The exosphere goes from about 400 miles (640 km) high to about 800 miles
- **Ionosphere:** it contains many ions and free electrons
- **Mesophere:** is characterized by temperatures that quickly decrease as height increases.

Clouds

- **How do clouds form?:** Clouds form from water vapor
- **Cirrus:** Thin, wispy, filamentous, or curly
- **Strato-cumulus:** Broad and flat on the bottom, puffy on top
- **Stratus:** Uniform, flat, thick to thin layered clouds will ill-defined edges

Decision Making

- **D: Detect**
- **E: Estimate**
- **C: Choose**
- **I: Identify**
- **D: Do**
- **E: Evaluate**

Excerpts from interactive online scenario courses:

http://canvaslib.erau.edu/coa-flight/wtic/03NEXRAD/story.html

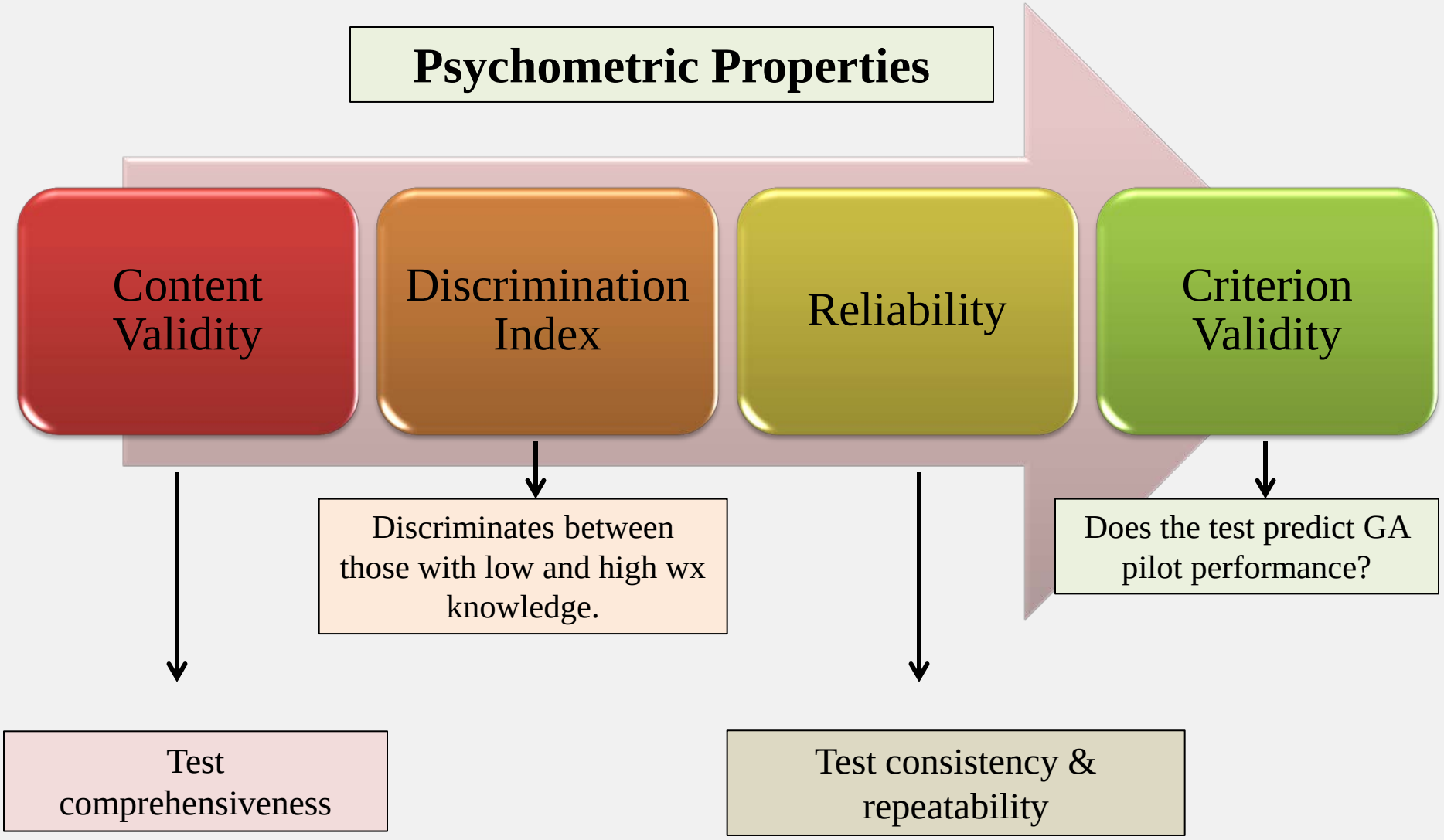
http://canvaslib.erau.edu/coa-flight/wtic/10Scenario02/story.html

2015-Assessing Aviation Wx Knowledge

2015	Developed 113 test questions to assess aviation wx knowledge of GA pilots -Validating assessment with 300 GA pilots

https://youtu.be/Z7g0AycOrzw

2015-Assessing Aviation Wx Knowledge



Future Wx Training for Pilots

https://youtu.be/I05fsP-bLxU

Take Aways

- Are GA pilots accurately assessed on aviation weather knowledge and skills?
  - -113 question assessment and test validation helps to answer question
- There is more we can do to train GA pilots about weather and technology
- Goal: Create dynamic, self-study scenarios that provide instant feedback in a cost-effective manner.