# Learn, Design, Develop: My summer with Unidata AWIPS

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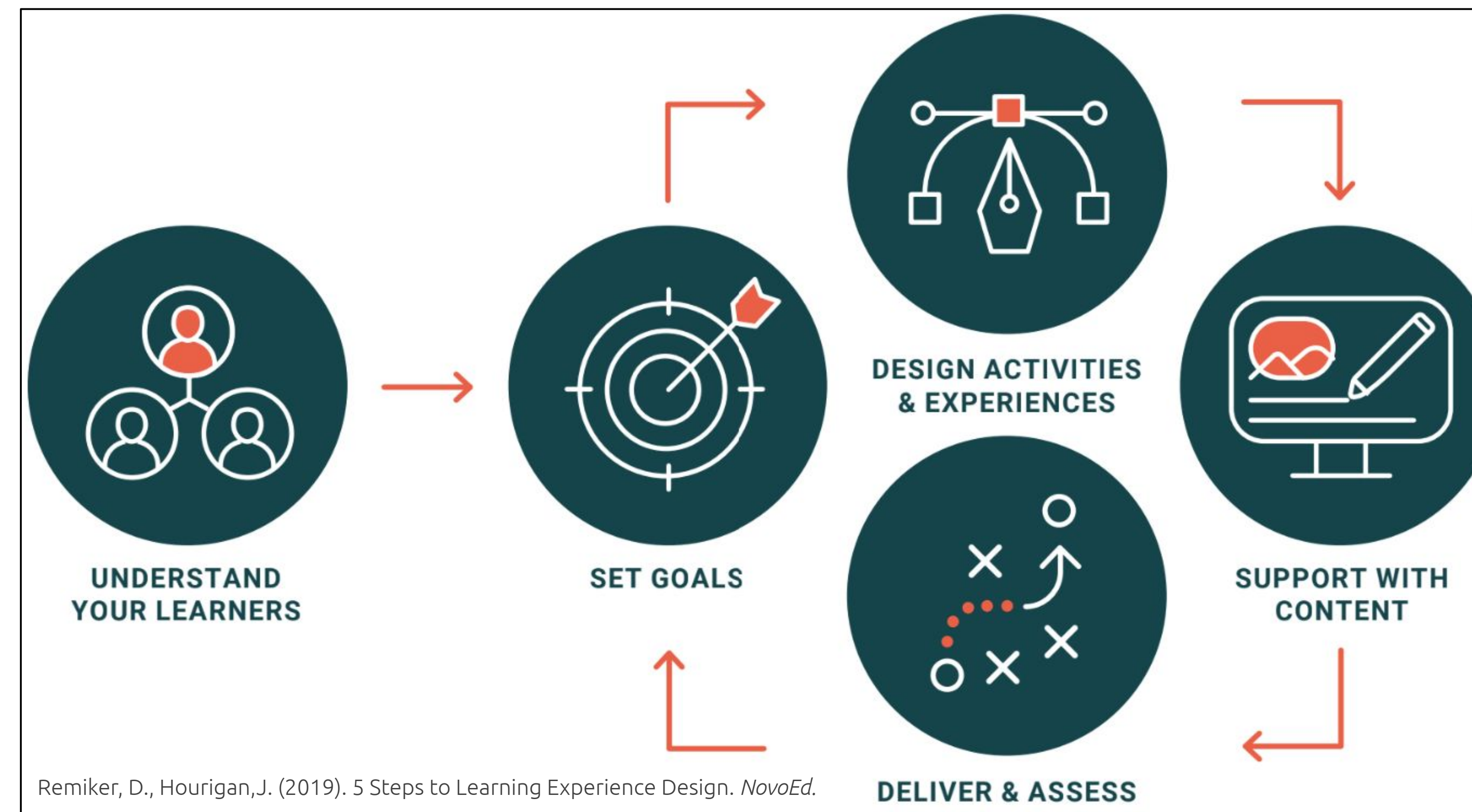
## Background

Unidata AWIPS supports two visualization frameworks for rendering meteorological and geographic data: CAVE, a graphical user interface (GUI) application and Python-AWIPS, a programmatic application programming interface (API) for EDEX. Users can learn about each through multiple educational resources, some of which include:

- AWIPS Tips provides topical updates and tutorials
- Learn AWIPS CAVE is an eLearning course
- Jupyter Notebook examples for Python-AWIPS

This summer I contributed to each of these resources while gaining foundational technical and instructional skills.

## Motivation

*To transform the geosciences community, research, and education by providing innovative data services and tools* - Unidata Mission

- Educational resources for these visualization tools can lower barriers to using software tools
- Targeted tips and tutorials increase access to and awareness of informative ways of using data
- Serving our University community with better instructing on CAVE and Python-AWIPS
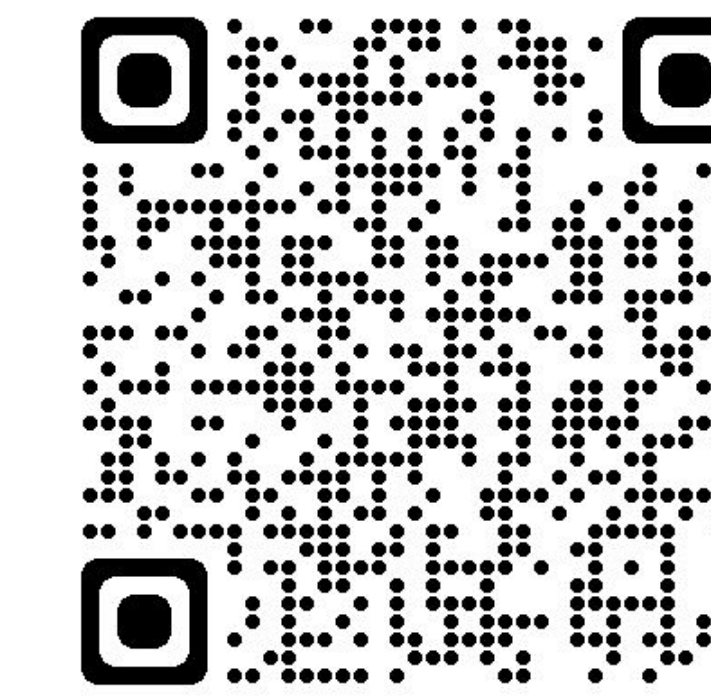
## Instructional Design Methods

- Context and emotion are essential. Remind learners of applicability of tool in geosciences.
- Rapid Prototyping in each phase
- Break up learning into meaningful chunks with accessible challenges



UNDERSTAND YOUR LEARNERS → SET GOALS → DESIGN ACTIVITIES & EXPERIENCES → SUPPORT WITH CONTENT → DELIVER & ASSESS

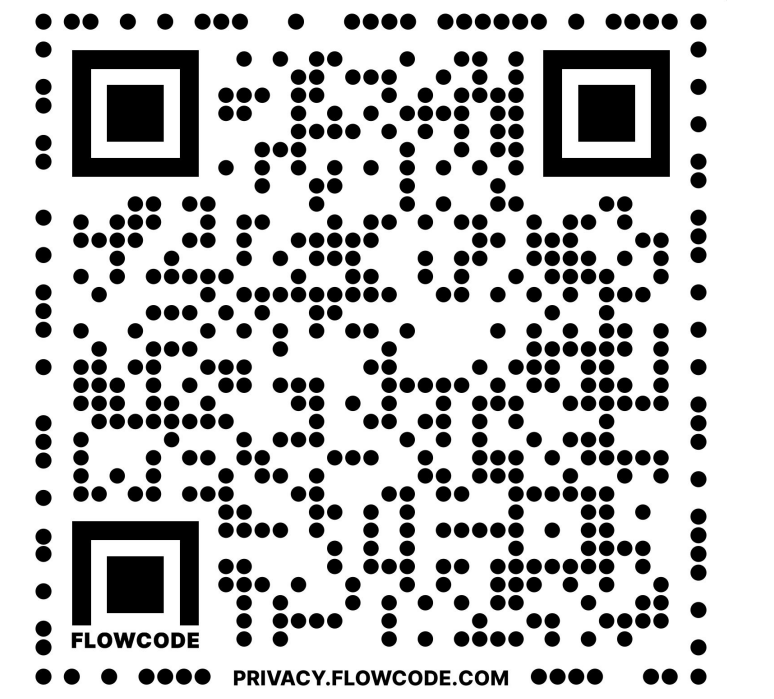Remiker, D., Hourigan, J. (2019). 5 Steps to Learning Experience Design. *NovoEd.*

## Contributions

Learn Python-AWIPS eLearning module



Video: Drawing Properties for WWA display in CAVE



- Contributions to *METAR Station Plot with MetPy* Jupyter notebook example

## Next Steps

- Publish blogs for AWIPS Tips and new resource
- Evaluate using KirkPatrick Model:



LEVEL 1 REACTION
LEVEL 2 LEARNING
LEVEL 3 BEHAVIOUR (Monitor and Adjust)
LEVEL 4 RESULTS

Kirkpatrick, J., Kirkpatrick, W. (2010). An Introduction to The New World Kirkpatrick Model. *Kirkpatrick Partners.*

### Learn

**Community Outreach**
What resource is needed next? Who needs this information the most?
- Evaluation Meeting with Texas A&M Professors
- Email Interviews with University Professors and Professional Users

**Foundational Skills**
- Project Pythia Tutorials on Python, Jupyter, and Git
- Providing user feedback on Learn AWIPS CAVE course
- Communication with Subject Matter Experts (SME)
- Submitting pull requests to Unidata/python-awips

### Design

**Scaffolding**
- Assumptions about previous knowledge of learner: Are they familiar with Python? with meteorological data?
- Pre-requisites: previous courses; installation of applications and programs

**Learning Objectives (LOs)**
- Terminal and Enabling Learning Objectives
- Bloom's Taxonomy
- Assessment: How will we know if the learner has achieved the objectives?

**Storyboard**
- Outline of topics with LOs
- Instructional and Assessment tools

### Develop

**Educational Technology**
- Take advantage of pre-existing material
- Use Camtasia and Articulate Rise 360 to create new content

**Building Narrative**
- Context, Challenge, Activity, Feedback
- What is the story learners will follow?