- Theoretical framework
    - Experiential learning theory
    - Action Research methodology
        - lab to lab
        - project snapshot to snapshot
- Context
    - software engineering
    - 5th year course
    - has several pre-req courses
    - students has finished a mandatory coop
    - 12 weeks individual labs
    - 1 semester long group project
    - (optional midterm and) final exam
- gap / issue / wondering
    - course has been originally from computer science
    - course is more theoretical - lots of concept how the system works
    - more tools
    - course does not prepare students for a entry-level position
    - the current delivery does not give students confidence to pursue cloud practitioner position
    - they don't get a professional identity as a cloud engineer
    - but the course should prepare them for a cloud engineer

- **Research Question**
    - How does the redesign and implementation of a "Practical Cloud Computing" course, grounded in industry-aligned competencies, influence the development of professional identity among undergraduate software engineering students?
- **Theoretical Framework**:
  professional identity using the following three constructs:
    - Knowledge and familiarity with expectations of the field
    - Technical skills of the field
    - Ability to self-evaluate and engage in continued learning

- **Course Redesign Approach**:
    - Based on recent literature analyzing job postings in the cloud computing industry.
    - cloud-related competencies are grouped into knowledge areas suitable for an undergraduate one-semester course.
    - Course content, assessments, and activities will be designed to align with these industry-validated knowledge areas.
    - Learning activities included labs, exams, reflective writing, group projects, and surveys, each will be mapped to the three professional identity constructs.
- **Data Collection and Instruments**
    - Construct 1: Knowledge and familiarity with expectations of the field
        - Midterm and final exam scores (quantitative), categorized by knowledge area

        - Pre- and post-semester surveys on students' understanding of field expectations (quantitative and qualitative)
- Construct 2: Technical skills of the field
    - Lab assignment marks (quantitative)
    - Lab self-reflective reports (qualitative)
- Construct 3: Ability to self-evaluate and engage in continued learning
    - *(optional) Group project evaluation using a rubric (quantitative)*
    - Group project written report with focus on learning strategies and future planning (qualitative)
- Cross-construct / impact on professional identity
    - Pre- and post-semester surveys on perceptions of professional identity (quantitative and qualitative)
    - *(optional)* Observational notes from instructor and RA throughout the term (qualitative)
    - End-of-semester individual interviews (qualitative)