Research Experience for Teachers II
Curriculum Project Proposal Pilot Study

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Presentation Goals

- Communicate the proposed project concept
- Gather feedback on the idea
- Convey work completed
- Communicate the plan going forward

Proposed Project

- To examine a tool which connects researchers with students anywhere anytime
- **To examine the use of a tool to enhance modelling modes of thought**
- To examine a tool which puts a real face to real science
- To <u>reconstruct</u> an IT tool
  - Leveraging off the shelf information technology to facilitate interactions of one to few.
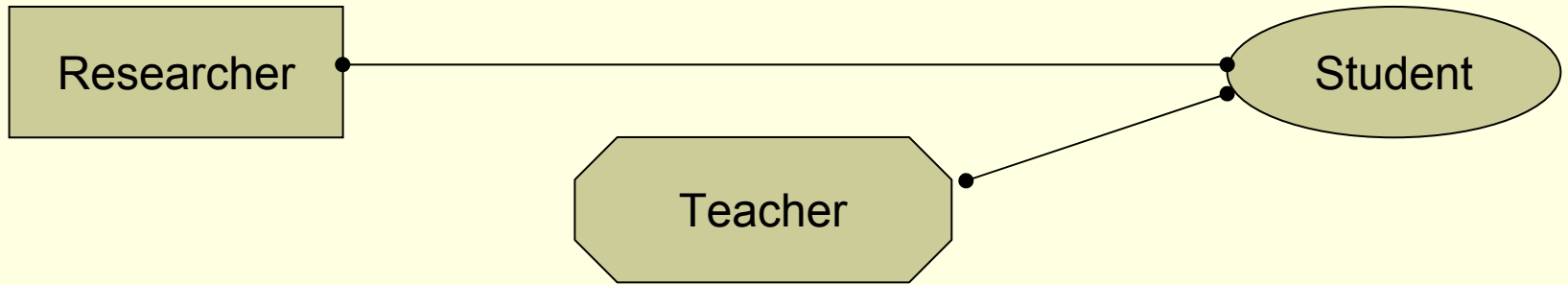
Work To-Date

- Literature Gathering
- Interviews with Experts
- Technology Searches
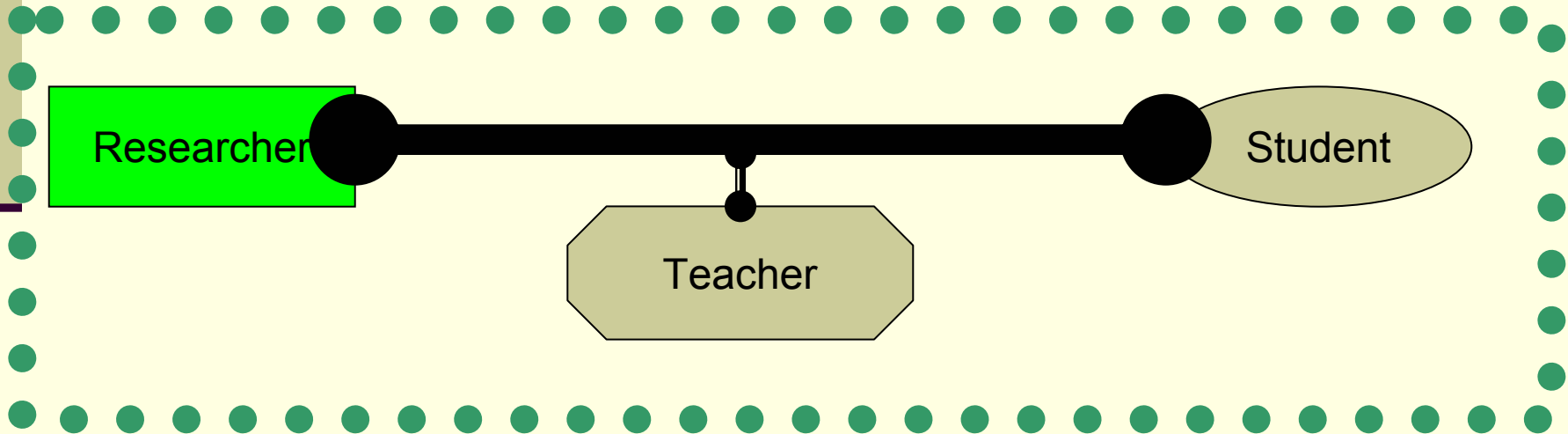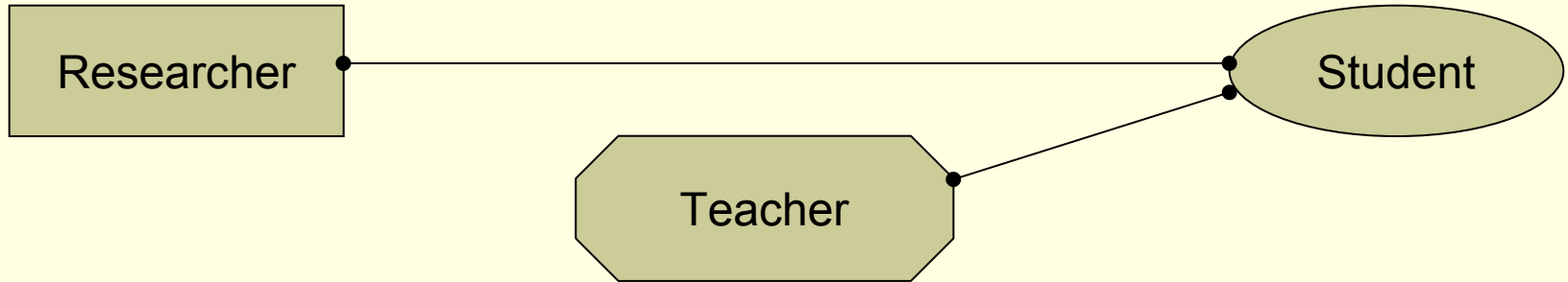
Modes of Interactions

Researcher(n)

Teacher

Student

Question Center

Modes of Interactions

Researcher —————————— Student

Teacher
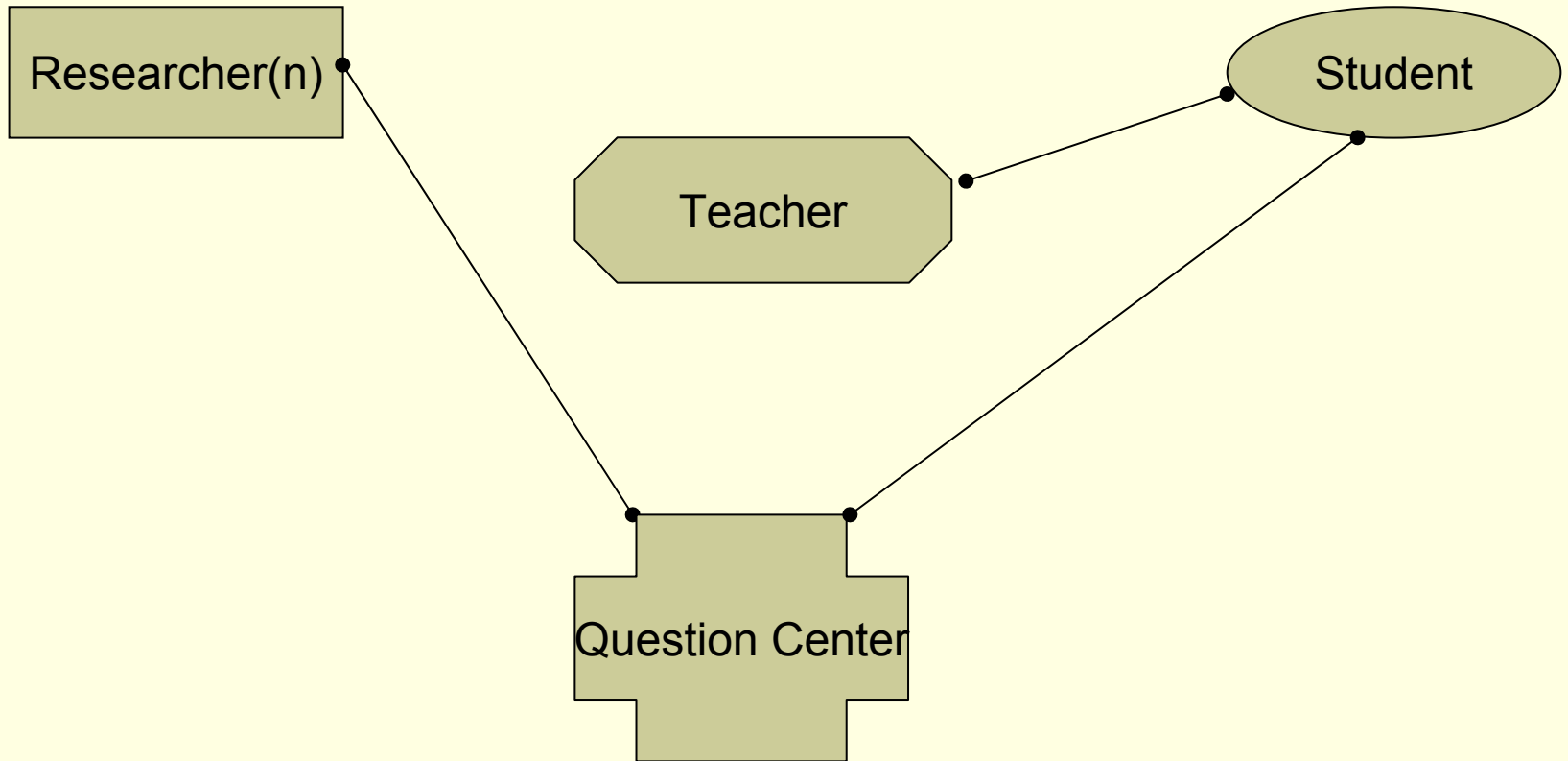
Modes of Interactions- over time

Researcher — Student

Teacher

Researcher — Student

Teacher

Project Concept

- Current topic
- 4 week student and researcher engagement
- Small groups of 13 to 18 years olds
- Dialogue scripting
- Video Email
- Student output ideas (CPS)
  - Video presentation
  - Next steps
  - Future leaning or work
  - Info portal
  - Data Analysis
  - ????

Project Concept- Time Usage

- Overall profile
- During {*Kick-off, In-Flow, Construction, Sharing*}
  - Learner
  - Educator
  - Researcher
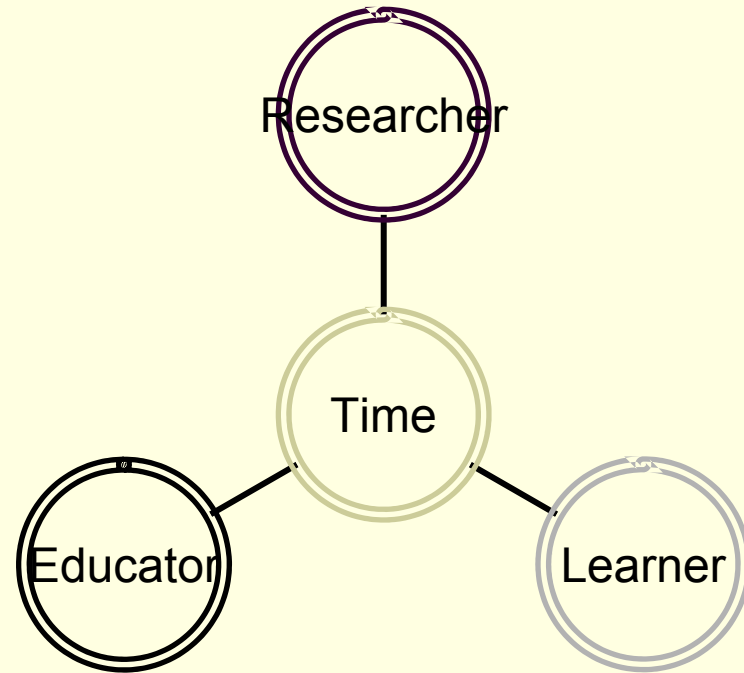
Project Concept- Time Usage

- During In-Flow Phase
    - Learners initiate dialogue following the initial script modelled of a basic interview process. This is first document and scripted by the students based on interpretations of the overall Challenge Questions.
    - Further on in the conversation, student lead with questions to try to uncover the higher-order thoughts/insights/feelings/modes of thought of the researcher

Proposed Project Role Play

- AHA or Eureka
- Big Picture
- Daily Picture
- Personal Background
- Measurement Machine
- Creative Example/Something Built

Brain Storm

- Types of student output
- Cross Disciplinary Integration ideas
- Researcher/Teacher Package Questions
- Other insights

Work Plan (In-Progress)

- Develop 2 to 3 models
  - Teacher package
  - Researcher package
  - Student package IT Package
- Literature gathering
- Standard gathering
- Develop a research plan/lesson plan
  - Customer Hierarchy Model
- Equipment List

Future Plan

- Short-Term
  - Lesson Plans for Models
  - Sell to my new administration
  - Test one model with student volunteer
- Mid-Term
  - Test two models with new researchers
  - Re-package
  - Document learnings
- Long-Term

Supporting Documents- Lesson Plan

Click on Image below to load complete document

Project
Concept A
Lesson Plan

A. Lesson/Unit Title
  Reality Science. Anytime. Anywhere.
  In focus- "Hugh, proteins fold? Why should we care?"
B. Topic or Focus Area
  - Chemistry
    o Test Methods
    o Quantitative
  - Biology
    o TBD
  - Biochemistry
    o Protein folding concepts
  - Information Technology
C. Subject and Grade
  a. Ages 13-19
  b. Middle School to Junior College Learners
D. Duration
  a. Kick-off   1week   Educator/Researcher Oct. 2003
  b. Dialogue In-Flow 4weeks   Learner/Researcher Nov. 2003
  c. Construction   1week   Learner/Educator   Dec. 2003
  d. Sharing   1week   Learner/Researcher Dec. 2003
  e. Overall   7 to 9 weeks Educator/Researcher/Learner
E. Necessary Resources
  a. Equipment and Materials or Physical Resources
      i. Principal Investigator sponsored researcher
      ii. Small group of volunteer students
  b. Necessary Technology Tools
      i. PC, Linux or Mac System   Available
      ii. Collaboration Virtual Location   Needed
      iii. 2 web camera   Needed
      iv. Video Email Software   Needed
  c. Other
      i. Regular feedback
          1. RET Advisors
          2. RET II Teachers
          3. RET Teachers

Supporting Documents- Concept

Click on Image below to load complete document

Student/Teacher/Researcher Package Concept

Interactions Timeline

Kick-off

Dialogues (email)	Teacher	Researcher
Kick-off	Locate researcher Select student group Suggest 2-3 "Topic Challenge Statements" Select Project Output	Identify lead contact
1-2	Agree to one Topic Challenge Statements	
3	Select five seed conversation threads which are most relevant to the topic challenge statement	Provide key term list Provide recent article abstracts relevant to research

Topic Challenge Statements are:
- A statement or question which establishes the body of science to be the focus of the researcher/student engagement
- Usually phrased in a the form of a question
- Relevant to the student group's interests and/or socially relevant
- Student project output linked to selected challenge statement

Seed message thread options:

Dialogue In-Flow

	Student Group	Researcher (lead contact)
4-9	Brain storm list of supporting challenge questions	Supply 2min. max responses to each of the chosen seed message threads
10-20	Student led dialogue (5 day response time w/ interaction terminated within 3 weeks)	

- Students create concept maps of each seed message response

Construction

Sharing