Research for Real Life

Engaging High School Seniors through Authentic Action Research

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Course Overview

Research for Real Life is a full year sequence for high school students in their senior year to gain unique experience conducting an action-based research project using qualitative and quantitative research methods. The Fall semester will focus on developing research skills, while the Spring will offer an opportunity to transfer to real projects. The focus on applied research enables students to work on a project that is in every way "real", and will give them the opportunity to interact with, help and learn from their broader communities through partner clients who participate in the project.

Who	High School Seniors, mixed ability, recruited by teachers
What	Research methods, focused on action based research
Why	Increase engagement, give students opportunity to grow
Where	Elective course, meets regularly dependent on school
When	Fall course of year long sequence

Course Experience

Timeline	May-June	July-August	Fall Semester	Spring Semester
Program	Advertise Applications Registration	Pre-assessment	Fall Course: Research methods and practice Build contact with organization projects	Spring Course: Independent Projects with collaborating organizations, research report, presentation with recommendations
Learner Experience	Find out from teachers Register for course Short application State interests	Summer assignment Hear about community organzaitons	Learn multiple research methods Regular bi-weekly assignments Interact with external contacts	Meet regularly with contacts Propose and conduct research Present findings and reccomendations to contact
Teacher Experience	Contact enrolled students Discussion	Contact local organizations about participation	Prepare regular lessons Faciliate early conversations between student organizations	Support students 1:1 Facilitate group discussions and critique

Learning Goals (C)= Cognitive (M)= Metacognitive

Stages of Research	Knowledge	Skills	Dispositions
Explore an Issue **Problem Statement** **Literature Review**	Understand how researchers create models to understand issues and questions. (C) Reflect on and redefine own definition of research. (M) Reflect on ability to understand higher level research models. (M)	Be able to develop abstracted models in order to understand issues and questions. (C) Be able to distinguish differences between types of research. (C)	Have a positive attitude towards research- based learning. (C) Reflect on and change own attitude towards research (M)
Develop Plan **Research Questions** **Research Design**	Understand broad categories of research goals. (C) Understand validity and bias in conducting research. (C)	Be able to develop a strong research question with clear goals and direction. (C) Be able to choose the methods and methodologies appropriate to a particular situation/ question. (C) Be able to make decisions between methods based on research goals and constraints. (C) Be able to design a study with minimized bias and construct validity. (C)	Reflect on and critically evaluate own opinion of research tools, methods and strategies (M)
Collect Data **Data Collection** **Validity**	Understand methods and methodologies related to qualitative data research. (C) Understand methods and methodologies related to quantitative data research. (C)	Be able to capture data from multiple data types. (C)	Show interest in collecting multiple viewpoints. (M)
Analyze Findings **Code data** **Organizing findings**	Understand what defines specifically qualitative and applied research. (C)	Be able to synthesize findings from multiple data types. (C)	Have positive attitude to dealing with large amounts of data (C). Be able to scale project. (M)
Communicate Meaning **Results** **Present**	Reflect on different types of research in relation to own experience and interests. (M)	Be able to craft clear, well supported and creative recommendations based on findings. (C)	Demonstrate interest in using research tools beyond the classroom. (M)

Core Ideas

- Project Based Learning
- Authentic Research
- Connected Learning
- Active learning
- Growth Community
- Explicit Feedback

Learner Profile

To recuit students that will value the experience, students will be nominated by teachers- in addition to being able to self-select. Teachers will be encouraged to nominate students that have high potential but may be likely to struggle in senior year/ transition.

Knowledge

- Familarity with academic language from other courses
- Basic definition of "research" from science, history courses

Skills

- writing
- observational skills
- data analysis
- time management

Attitude

- Interest in working on a project
- Willingness to try something new
- Stress related to future plans

Individual Differences

- Range of academic achievement
- Differences in post-grad plans
- Difference strengths (verbal vs. logical vs. visual)

Instruction

Explicit Investigations Active Learning

Lectures
Bi-weekly lectures introduce materials for the week.

In-Class Activities
Bi-weekly structured activities follow lectures for experiential learning.

Authentic Research

Work Days
2-3 times a week stundents have the change to work on projects during class.

Connected Learning

Connections
Talks by community members, practioners and researchers connect students to

Growth Mindset Community

Discussion
Weekly discussions, critiques and peer reviews build community of deep learning.

Unit Schedule

Unit 1: Exploring an Idea	Unit 2: Developing a research question	Unit 3: Qualitative Methods	Unit 4: Quantitative Methods	Unit 5: Analyze Findings	Unit 6: Writing Recommendations	Unit 7: Designing a Research Plan
Explore an Issue	Develop Plan	Collect Data	Collect Data	Analyze Findings	Communicate Meaning	Develop Plan

Unit 4: Qualitative Methods

Learning Goals: Collecting Data

Lecture
-Define qualitative data
-overview of most commonly used methods
-Pros/Cons of qualitative methods
-Interview basic skills- design and implementation
In class activity
-Practice using pre-made scripts to ask questions (on each other)
-Come up with rules for designing good interview questions

Mini-lesson
-Building a relationship throughout an interview
-Who you interview matters

Structured check in
- Practice your questions on a friend (pilot them)
-Take note of issues and adjust

Discussion
-What can we get from qualitative data that we can't get from quantitative data? Vice versa?

Mini-lesson
-Analyzing and interpreting qualitative data

Assessment

Student Growth

Projects
Each unit is focused around a project that scaffolds the research step.
Validity:
Reflects student skills as represented by their authentic work.
Reliability:
Rubrics clearly lay out critera for sucess to avoid subjective variation.

Digital Journal Logs
Students are required to use Journal Logs as part of each assignment and to generally record reflections.
Validity:
Reflects metacogntive development over projects.
Reliability:
Difficult to have reliable rubric.

Program

Pre-Post tests
Two part test assesses cognitive skills and metacognitive growth.
Validity:
May be impacted by many external factors parallel.
Reliability:
Allows for comparision with grades and student initial differences.

Project Based Learning | Frequent Formative Feedback | Programmatic Research

Project: Open Ended Interview

1. Brainstorm a list of questions based on interview findings and research goals
2. Determine key data of interest related to research goals
3. Distill and refine questions into most essential towards goals
4. AS A CLASS: come up with less than 10 questions +demographics
5. Administer survey (Teacher should coordinate with other teachers to have class survey administered in other classrooms
6. AS A CLASS: Run basic statistical analysis on findings
7. Report general trends and responses
8. Choose a particular component of the data and write up a more detailed analysis.

Research

Questions
What is the impact of giving and recieving formative feedback through peer reviews in comparision with teacher feedback?
Hypothesis: Direct formative feedback improves quality of project and impacts metacognitive learning.

What is the best medium for this feedback?
Hypothesis: Students respond best to multiple parallel modes of feedback communication.

Is teacher or peer feedback more effective?
Hypothesis: Peer and teacher feedback are effective in different contexts, and partially different person-to-person.

Experimental Design
Treatment groups: stratified random assignment.
Trial 1
Treatment A: Students recieve expert feedback from teachers.
Treatment B: Students give and recieve feedback to peers.

Trial 2
Treatment A: Students recieve expert feedback from teachers.
Treatment B: Students recieve feedback only.
Treatment C: Students give feedback only.

Data
Project grades (Projects)
Growth in projects (Digital Journal Logs)
Survey (Self report)