Completer Action Research Project

As part of their graduate course requirements, five completers over three years conducted action research projects in the P-12 classrooms in which they were currently teaching. Completers in the study identified an area of focus applicable to their students and their setting and developed a research question to guide their inquiry and data collection plans. EPP faculty provided guidance related to research methods, data collection, and analysis. All completers collected pre and posttest data to provide measures of student learning. Each completer reported data analysis and findings, as well as a reflection of the process. The project is intended to provide an opportunity for the teacher to conduct an inquiry into their teaching and for the purpose of modifying their practice to increase learning.

Completers who were currently teaching in their own classroom were enrolled in a math course in their graduate program of study. Instruction in action research either preceded or coincided with the semester in which the completers were enrolled in the math course.

Project Methodology

Completers received instruction wither concurrently or in the semester prior to the math course in which the project was implemented. A convenience sample of whom all were completers of an initial teacher education program were selected as participants for this pilot study. Participants began by selecting a focus for their project in an area that was relevant to learning in their own classroom. The only requirement was that the focus area was within the scope of the math standards for the grade that they were teaching at the time of the study. Once a topic was selected, the participant was guided through an investigation of current literature and clarifying learning theory related to their rea of focus. Based on the research reviewed, participants then developed a research question to guide their study. A plan of implementation was determined and data was collected throughout. Data was analyzed in a way that was useful for the purpose identified by the teacher. Data was then reported out to the cohort of teachers in the course and in the final report of their project. The final step in the

project was to then implement the practices if they were found to be effective. Project directions and scoring rubric are available inn Appendix A.

Limitations

EPP faculty realize that this method of collecting effect of completers on P-12 student learning has limitations. There is inherent bias that must be acknowledged in any action research project completed by a classroom teacher on her own students. Not all assessment measures used are valid nor reliable as many were created by the teacher for a specific population of students. Inconsistency exists in the reporting methods of data collected.

Analysis of Project Data

Over all three years of project implementation by EPP program completers, student learning gains in were reported in each classroom. Numbers of P-12 students included in the studies and data summaries are noted in Appendix B.

Plans for Continued Data Collection

EPP faculty would like to continue collecting data from completers who return to complete graduate work. Expanding the number of completers in the study is desirable but contingent upon the number who enroll in a graduate program per year. In an effort to widen the scope of completers with whom a collaborative effort can take place to collect student learning data, EPP faculty are discussing plans to implement a similar project into other advanced level coursework or develop a protocol for requesting student learning data from all completers enrolled in all graduate programs at the EPP.

Appendix A

Math Station Project Template and Directions

Teacher:

Grade level:

PLANNING:

1. **Broad Aim (content area of focus): *For example*: multiplication, shapes, fractions**

Choose ONE of the following as a target within your big focus area from #1 to develop your research question:

(a) Student Engagement: Are students engaged, excited, immersed in learning as a result of implementing a math station? (excited about doing it)

OR

(b) Student Knowledge: Have students developed deeper understanding of the concept of focus as a result of implementing math stations? (understanding how "it works")

OR

(c) Student Competency: Are students more proficient in performing skills as a result of implementing math stations? (actually doing it)

NOW, develop your research question…

2. Research question: (What question are you trying to answer through the completion of this project?): For example: Will the implementation of a math station increase students' ability to add within 100 (this is a competency example) OR increase student engagement in learning to add (this is an engagement example) OR develop a deeper conceptual understanding of addition (this is a knowledge example)

Implementation:

2. **Consult the research: For your research project, you will put together a brief literature review to cover three areas of research:**
    1. **Math Stations- this research will be included in the modules as we move through the course.**
    2. **YOUR content focus- For example: what does research tell us about teaching and learning multiplication?**

    3. Based on the area that you chose, engagement, knowledge (conceptual understanding) or competency (proficiency), what does the research tell us about how to address with students?

3. Data collection:

(a) **student engagement** – administer a student engagement survey at beginning and end of project

(b) **student knowledge** – administer assessment at the beginning and end of project to assess conceptual understanding

(c)**student competency**- administer assessment at the beginning and end of project to assess proficiency

4. Method:

Implementation plan: for the planning round of this project, think about what you think that you will be doing which will include all of the pieces we will be creating for your station as well as what you will do through instruction and by using materials recommended in the research you read. You may or may not stick to this plan verbatim, likely, it will change and morph as you work through this project and actually do it with your students. Go into the planning phase with the mindset that specifics will become clearer in the final write up; it will feel vague in the planning stage. ☺

Data collection tools (assessments, inventories, observations, etc.) Include in the method section what you are planning to use as a way to collect data (refer to the suggestions above in the data section) and when you will administer. In your final project, you can give more detail as to describe the tool, include a sample, and discuss the time(s) in which you actually administered it.

5. Data analysis (what does the data tell you and how will you respond in your teaching practice?)

7. **Reflection on the process-**In the final project, this will be a reflection on the process and specifically on the implementation strategies that you selected.

Project Rubric

Project Components	Beginning (.25)	Developing (.7)	Accomplished (.9)	Exemplary (1)
Research Question/Problem (10)	Research question is difficult to investigate.	Research question is adequate	Research question lends itself to action research.	Research question is succinct and able to be investigated
Literature Review (20)	Literature review is unclear and not related to research question	Literature review relates to research question and has at least 3 primary sources cited; is far less or far greater than 2 pages.	Literature review relates to research question and has 4 primary sources cited, approximates 2 pages in length.	Literature review relates to research question and 5 or more primary sources are cited; approximates 2 pages in length
Preparation for Implementation (10) Math Talk, "I Can", and Parent resource components will be included in the implementation section.	Unclear outline of what the teacher will do to prepare for implementation.	Outline contains minimal detail explaining how teacher will prepare for implementation.	Outline lists general steps explaining how teacher will prepare for implementation.	Outline details specific steps the teacher will take in order to prepare for implementation.
Method (20) Student Self-assessment tool will be included in this section.	A weak description of the method is provided.	A brief and limited description of the participants, action taken, and assessment tools are provided.	The reader has an understanding of the participants, action taken, and assessment tools used. Each is mentioned.	The reader has a clear understanding of the participants, action taken, and assessment tools used. Each is described in sufficient detail.
Data analysis and reflection (30)	Data is absent from the narrative. Analysis is weak and does not relate to	Data is mentioned in the narrative. Analysis does	Data is discussed in the narrative and displayed	Data is discussed fully and displayed in an appropriate graphic form.

	the original research question. The influence on teaching practice is vague.	not indicate reflective thinking and is only somewhat connected to original research question. Reference to teaching practice is made.	in graphic form. Analysis is somewhat reflective and connected to the original research question. Teaching practice is discussed.	Analysis is thoughtful and reflective thinking is evident. A strong connection between the data, analysis, and original research question is made. The influence of the research/results on teaching practice is included and clear.
APA format/grammar/ style/mechanics/references (10)	Overall writing is weak and less than scholarly. Many citations are missing or are cited incorrectly. Numerous grammar errors are present in the paper.	Overall writing is developing in tone and clarity. Formatting problems exist, but for the most part references are available and the paper is in the proper format.	Overall writing and grammar are consistent with standards expected of graduate students. No more than one or two errors in formatting and reference use exist.	Overall writing and grammar for the paper are exemplary and represent scholarly work. References, citations, and formatting are all included and in the proper format.

Appendix B

Completer Analysis of Math Station Data Collected in their P-12 classroom

Fall 2017 Completer Data Analysis of Math Station Project

Completer	Number of students assessed	Data analysis by completer (From pre-test to posttest)
1	14	• There was no change with 2 students from pre to posttest. • 11 students showed at least a **20-point gain**. • 86% of students showed **gains** from pre-test to posttest.
2	18	**Growth** recorded for all 5 areas assessed.

Fall 2016 Completer Data Analysis of Math Station Project

Completer	Number of students assessed	Data analysis by completer (From pre-test to posttest)
1	16	• 50% of students demonstrated mastery on pre-test and 100% of students demonstrated mastery on posttest. • 50% **gain**
2	5	Learning **gains** in all 5 areas for all students assessed.

Fall 2015 Completer Data Analysis of Math Station Project

Completer	Number of students assessed	Data analysis by completer (From pre-test to posttest)
1	21	• Analyzed pretest and posttest scores across 6 questions on standardized test. • **Growth** in all areas represented • Average percentage **gain** of 9.5 students achieving proficiency within each question analyzed