

STONE CHILD COLLEGE
REFLECTIVE PRACTICE AND RESEARCH IN EDUCATION
EDU 495

COURSE SYLLABUS

COURSE INFORMATION

- A. Number: EDU 495
- B. Title: Reflective Practice and Research in Education
- C. Credits: 2
- D. Spring Semester
- E. Co-requisite: EDU 490

INSTRUCTOR INFORMATION

- A. Kadene Drummer

REQUIRED MATERIALS

Selected course readings on professional practice, assessment, and educational research provided by the instructor(s).

DESCRIPTION

Reflective Practice and Research in Education is a capstone course for the Teacher Education Program, and is taken along with student teaching. The course focuses on research and best practices in education with relation to classroom management, student assessment, and other topics important to high quality teaching in elementary education settings. Candidates analyze lessons learned during student teaching, engage in the development of action research, and complete the TEP Stage III process.

CANDIDATE OBJECTIVES:

Candidates will:

1. Apply information learned in class and through the process of action research to enhance the effectiveness of their teaching practices.
2. Analyze and evaluate their own teaching skills using student data, self-assessments, feedback from others, and goals for improvements;
3. Compare and contrast various instructional interventions in relation to their effectiveness in promoting student learning;
4. Utilize action research as a process to evaluate outcomes of teaching using a variety of data, including systematic observation, information about learners, research to adapt planning and practice;
5. Engage with a community of professional learners to document reflections on student teaching experiences and growth as a teacher.

COURSE REQUIREMENTS

- A. Participation in weekly meetings and group activities
- B. Complete and present Action Research Project
- C. Post an original weekly journal/blog entry documenting your ST experience, and respond/comment to a minimum of one classmate's blog entry per week.

GRADING SYSTEM

Completed Action Research Project with Evidence Form = 100pts
 Attendance/Participation in class: = 100 pts
 Presentation of Action Research = 100 pts
Total points: 300 PTS

270-300	A
240-269	B
210-239	C
180-209	D
below 180	F

InTASC AND PEPP STANDARDS ASSESSED IN THIS COURSE

InTASC Principle 9: Professional Learning and Ethical Practice	The candidate engages in ongoing professional learning and uses evidence to continually evaluate his/her practice, particularly the effects of his/her choices and actions on others (learners, families, other professionals, and the community), and adapts practice to meet the needs of each learner.	10.58.501 (i)	4.1 Engage in ongoing professional learning to provide all learners with engaging learning experiences 4.2 Evaluate outcomes of teaching using a variety of data, including systematic observation, information about learners, research to adapt planning and practice 4.3 Reflect on teaching practices to improve instruction
--	---	---------------	--

Assessment - Action Research Project: The Impact on Student 's Educational Performance Rubric

Rubric for Assessing Action Research Project on Impacts of Educational Performance				
Investigation parts	Not acceptable (0)	Developing (1)	Proficient (2)	Exemplary (3)
Research Question	The research question is unclear or too broad. No rationale is provided for the significance of the question. The relevant variables/issues involved are not clearly provided.	The research question is clear but the rationale for its significance and the variables issues involved are not clearly stated.	The research question is clearly stated. A thorough rationale explaining the significance of the question is provided. Relevant issues and variables are identified.	

A literature review on the proposed intervention	A review of the literature was not included or not relevant	A literature review included less than 4 relevant articles. The review provided some information on the proposed intervention but lacked detail or significance to the research proposal.	A literature review of 4-5 research based articles was critically reviewed. The review provided clear and relevant information on the proposed intervention and the identified problem with the purpose of mitigating the problem by increasing appropriate learning outcomes	The review reaches the level of Proficient and also includes at least one interview with an AI elder known to have relevant cultural knowledge related to the research question.
Assessment design	Assessments are not well designed to align with the learning objectives. Assessments are not well designed to provide valuable information about student learning.	Assessments are aligned with learning objectives but do not provide valuable information about impacts on student learning.	Assessments are directly aligned with stated learning objectives. Assessments are designed to provide valuable information about student learning impacts.	
Study design	Research design is incomplete, unclear or inappropriate for the research question.	The research design is generally clear and supports the research question.	The research design is clear and supports the research question. Includes a clear description of procedures with both controlled and extraneous variables.	The design is Proficient but also includes limitations, delimitations, and provisions for anonymity or confidentiality.
Data collection and organization	Data are absent, poorly organized, and/or inappropriately displayed.	Data are organized and appropriately displayed using graphs, charts or tables.	Data are organized to allow for analysis and interpretation using graphs and charts.	
Analysis and interpretation of data	Inappropriate techniques used in data analysis and interpretation. Little or no evidence of the use of appropriate mathematics.	Appropriate techniques, mathematical and otherwise, used in data analysis and interpretation.	Thorough analysis and interpretation of data using appropriate parameters for processing and interpreting data. The interpretation of data is presented in relationship to	Data are entered, organized, and analyzed using Excel or another spreadsheet.

			expected outcomes.	
Final conclusions	Conclusions are absent or not clearly related to the problem or supported by the data.	Conclusions are related to the problem and supported by the data.	Conclusions are based on the above analysis and directly answer the research question. Recommendations for modifying instruction based on the results of the study are provided.	.
Impacts on instruction	Discussion of ways to improve instructional outcomes, based on the data analysis, is absent.	Discussion of the research project includes suggestions for instructional improvements based on the project data analysis.	Discussion of the project includes suggestions for instructional improvements. Discussion further includes suggestions for modifying the research design and/or potential future research questions.	Discussion includes an assessment plan to serve as follow up and defines what level of demonstrated improvement will be considered successful.
Action Research Report	Research is not reported or is incomplete. Report is poorly written, with many grammatical errors.	Report of research meets minimal standards for completion. Some grammatical errors present	Report of research is complete and includes thorough description and discussion in each section. No grammatical errors found. APA format.	Report includes an appendix containing definitions of key terms, references, and a printout with results of surveys or assessments given.

Summary of Evidence

Candidate Name:	
Date	

Please note on the rubric above the appropriate evaluations. Describe evidence below.

<u>Standard</u>	Evaluation (Points)	Evidence used for rating and comments
Research question		
Review of the literature		
Assessment design		
Study Design		
Data collection and organization		
Analysis and interpretation of data		
Final conclusions		
Impacts on instruction		
Action Research Report		

Instructor's signature: _____

Date: _____

RUBRIC FOR THE EVIDENCE DOCUMENTATION FORM

The essential elements for this assessment are: The artifact must demonstrate the candidate’s ability to: 1) Engage in ongoing professional learning to provide all students with engaging learning experiences; 2) evaluate outcomes of teaching using a variety of data, including systematic observation, information about learners, research to adapt planning and practice; 3) reflect on teaching practices to improve instruction.

Essential Elements	0 Unacceptable	1 Developing	2 Proficient	3 Exemplary
<p>The artifact must demonstrate the candidate’s ability to 1) Engage in ongoing professional learning to provide all students with engaging learning experiences; 2) evaluate outcomes of teaching using a variety of data, including systematic observation, information about learners, research to adapt planning and practice; 3) reflect on teaching practices to improve instruction; and 4) the Evidence Documentation Form must reflect the 6 traits of writing.</p>	<p>Unacceptable (0) is defined to be a level of work lacking clear demonstration of more than one of the essential elements being assessed.</p>	<p>Developing (1) is defined to be a level of work that indicates all essential elements have been demonstrated, but one of those critical elements are underdeveloped to the degree it would be prudent for the candidate to receive additional preparation in the underdeveloped area.</p>	<p>Proficient (2) is defined to be a level of performance that indicates all assessed elements have been developed to the degree that it is reasonable to conclude the candidate has succeeded in meeting the stated expectations of the assessment.</p>	<p>Exemplary (3) is defined to be a proficient candidate who has developed beyond expectations in 50% or more of the essential elements being assessed.</p>

Notes for Action Research

Primary Objective: Candidates will demonstrate knowledge of a teaching intervention and the ability to determine the degree, if any, to which the intervention is associated with mitigating the research problem by conducting action research and engaging in professional reflection.

Chapter 1

Within two weeks of the student teaching or clinical field experience, the candidates will identify a problem involving student achievement (educational performance) in their placements. The candidates will propose a research question addressing the problem in order to explore the problem in such a way that the answer to the question may very well mitigate the problem.

Chapter 2 Review of Literature

A literature review of 4-5 research based articles will be critically reviewed. The intervention should target the identified problem with the purpose of mitigating the problem by increasing appropriate learning outcomes.

Chapter 3 Methodology

The population for the research will be the students being taught by the student teacher or a subgroup thereof. The researcher must state the specific research question(s) that will serve to form the methodology and an appropriate hypothesis to address the research question. The basic design for the research will be to implement an intervention to generate data that allows for comparisons of group means and/or provides data for a correlational/regression analysis. The methodology should establish *a priori* the level of findings the researcher will consider to be an important level and hence actionable in the classroom.

To make the determination of effectiveness, the candidate will utilize a pre-post research design or at least provide a baseline level of performance. The candidate will use the same or a very similar assessment to determine if the strategy was effective (this is the post-test).

Chapter 4

The candidate will then implement the devised teaching intervention and report the findings from the resulting data and analysis thereof.

Chapter 5

Finally, the candidate will reflect on the conclusions from the data analysis to determine the answer to the research question/hypothesis, the utility of the strategy, and appropriate modifications that could be employed to inform future research.

Components of the Applied Research Paper

C1 Introduction to the Issue

C2 Review of Literature for the Proposed Strategy

C3 Description of the Assessment to be used for Pre-Post Testing

C4 Description of the Results

C5 Reflection on the Overall Process

Comment

Action research requires the same conceptual rigor as the most formal educational research but does not require the same material logistics. Hence, the same logic model is used in action research, e.g., the five chapter format, which is required of the most sophisticated research but distinguishes itself from such sophisticated research by researching small populations. As such, action research uses parameters rather than statistics given it does not sample populations and calculate indicators of sampling error (p-values). Consequently, findings from action research are not generalizable beyond the actual participants.

The point of most quantitative research is to identify how one variable is **related** to another, i.e. how independent and dependent variables are related. Like all levels of educational research, action research cannot establish a causal relationship among variables. While it would be very useful if a researcher could logically conclude the presence of causal relationships, there is no valid educational research design in existence to allow for such a conclusion. So we cannot validly conclude after the analysis regardless of the findings that one variable “caused,” “had an impact,” “had an effect,” “determines,” “accounts for,” or “had an influence,” etc. on another variable.

So if we cannot say one variable causes the other, how are we to characterize the relationship that does exist between independent and dependent variables? There are essentially two ways for the educational researcher to characterize quantitative data, that is, (a) to compare the means and/or (b) to establish the degree to which the research variables are associated. The method by which variables are analyzed is simply dependent upon how the research question is framed.

In a broader scope of research, samples are randomly taken from populations followed by the computation of sample means wherein the mean differences are then computed and used to reflect on the research question and hypothesis. They are usually computed using t-tests or a variety of ANOVAs. However, in action research, these tests are not necessary because action research does not sample populations. Instead, parameters rather than statistics are used and means are compared using ordinary arithmetic procedures. The mean differences are then easily calculated and conclusions drawn from those findings.

If finding the association among variables is important, then the researcher has a variety of correlations available, though the most common is to use a Pearson r . The closer r is to 1 or -1, the stronger the relationship or association. Since interpretation of the Pearson r is quite subjective, a much better sense of the strength of the association can be calculated simply by squaring r and expressing as a percentage. When r is squared, the resulting value is known as the “coefficient of predictability” (previously called the “coefficient of determination;” however, the value of r^2 tells nothing about the degree to which one variable determines (causes) the other but it does reveal the percent of **predictability** the predictor (independent) variable has on the criterion (dependent) variable. Obviously the higher the correlation (r), the stronger the predictability (r^2) will be.

When a correlation is also used as a means of prediction, it is then called a regression analysis instead of a correlational analysis. In order to actually use the regression (or predictive) analysis, a regression equation must be calculated. This can all be done on Excel.

For example, suppose a correlational study was done in a high school having 200 high school students to see what association, if any, exists between the number of days absent and GPA. Using all 200 students’ GPAs and number of absences respectively, a Pearson r is conducted and it is found that $r = -.94$. Given -1 is the lower bound for a negative correlation, $-.94$ is a very strong thought negative correlation. In this case, this is good because a negative correlation means as one variable goes up, the other goes down. So as the number of days absent goes up, the GPA can be predicted to go down or in the contrary, as the number of absences goes down, the GPA can be predicted to go up.

So what can you do with this information? You can tell the parent or student the contents of the sentence immediately above, but you are very limited in what the $r = -.94$ specifically means. So you can easily calculate the coefficient of predictability and find $r^2 = 88\%$. Now you have something more specific, you can say that the number of days a student misses school provides 88% of the predictability of that student’s GPA. That does not mean the days absent cause the GPA, but it does say quite nicely that 88% of the predictability of GPA can be predicted just by knowing how many days the student missed school.

However, there is an even more useful piece of information available from doing the regression analysis (r^2) and that is the predictor equation. Suppose Excel calculated the predictor equation and found that a student’s grade point average may be predicted using this equation: $\text{GPA} = -.15 \times (\text{number of days absent}) + 3.92$. This is a simple linear equation having a slope of $-.15$ and a y intercept of 3.92 .

Since the regression produced 88% of the predictability, this equation won’t be perfectly accurate, but it will make a very strong point. For example, if the student misses no days, the equation predicts a 3.92 GPA (or the y intercept). The equation shows that for every day a student misses, the predicted GPA goes down by $.15$. So the predicted GPA for a student who misses 10 days would be 2.42 but we cannot say if a student misses a day, it will *cause* his/her GPA to drop $.15$. We can *predict* it with pretty good certainty given the 88% figure but we cannot conclude a causal relationship.

So each of these methods, i.e., comparisons of means, expressing a correlational coefficient, such as r , using the coefficient of predictability (r^2), and finally, the predictor equation are all ways to answer a research question. Whether you use mean differences, degree of association, degree of predictability, the predictor equation, or a mixture thereof depends upon how you want to ask your research question and how you want to express your findings. ETS, for example, is concerned primarily with predictive validity. That

is, the purpose of the SAT (or all standardized college entrance exams) scores is to serve as the value they use for the predictor variable in their predictor equation that ETS generates to predict college GPA. That is, your SAT, GRE, or whatever scores serve as an indicator of the predictability of your higher education GPA. The correlation for SAT scores and higher education GPAs is usually around $r = .2$, which gives an r^2 of 4%. That is, 4% of the predictability of your higher education GPA can be predicted by your SAT scores.

So in short, these techniques should always be kept in mind and used when possible in order to squeeze out the last bit of information found in the research. BTW, ETS never reports r^2 as r (.20) looks a lot better than r^2 (4%)!

This syllabus and notes on action research were adapted from the work of Dr. Merle Farrier with his permission. 9/4/2