School of Education

Research Program Mission Statement

The mission of the Research Program is to cultivate educator-scholars by providing graduate-level instruction and mentorship in writing, evaluating scholarly literature, collecting and analyzing data, and developing evidence-based recommendations. The Research Program promotes social justice, academic integrity, critical thinking, and effective communication.

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<tr>
<th>Course</th>
<th>Instructor</th>
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<tr>
<td>Semester</td>
<td>Fall 2015</td>
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<tr>
<td>Number</td>
<td>EDUC 6327</td>
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<tr>
<td>Title</td>
<td>Educational Research Design and Data Analysis</td>
</tr>
<tr>
<td>Section</td>
<td>KK-16</td>
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<td>Location</td>
<td>Online</td>
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Prerequisites

None

Textbooks Required


Course Description

Designed to introduce quantitative and qualitative research designs, methods, and data analysis techniques in education. Topics include ethical issues in research, construction and evaluation of measurement tools, critical analysis of research methods, use and interpretation of descriptive and inferential statistics, and analysis and synthesis of qualitative data.
Major Learning Outcomes
By the end of this course, you will be able to:

1. Describe the values, assumptions, and process of action research.
2. Formulate educational research questions and hypotheses.
3. Create a survey that reflects considerations of sampling, reliability, and validity.
4. Apply various action research designs to typical educational research questions.
5. Analyze quantitative and qualitative data with the appropriate techniques.
6. Develop an action research plan to answer a research question of interest.

Professional Association Standards Guiding this Course
The course objectives and outcomes of both research courses (EDUC/COUN 6326 and 6327) are consistent with the American Educational Research Association’s “Standards for Reporting on Empirical Social Science Research in AERA Publications” (AERA, 2006). The following areas are covered in the two-course research sequence and conform to AERA’s expectations.

1. Problem Formulation
2. Design and Logic
3. Sources of Evidence
4. Measurement and Classification
5. Analysis and Interpretation
6. Generalization
7. Ethics in Reporting
8. Title, Abstract, and Headings

Social Justice Tenets Guiding this Course
The content and goals of this course are consistent with three tenets of Catholic social justice teaching that inform the School of Education programs.

- **Subsidiarity:** Educational institutions should be organized and governed as much as possible by the community being served; education should only be controlled at higher levels of society when it cannot be done effectively locally.
- **Dignity and rights of children:** Children possess full human dignity and are bearers of rights which should be recognized and upheld in educational processes.
- **People have a right to an education:** All people have a responsibility, for the good of society, to contribute to and foster education.

The Research Program encourages high-quality educational research that can help to improve the education—and thus the lives—of all people, particularly those who are disadvantaged, traditionally underserved, and at-risk. The Catholic social justice tenet, **putting the needs of the poor and vulnerable first**, underscores the importance of educational research that promotes the elimination of poverty and discrimination.
Major assignments, due dates, and percentages of course grade

Students must earn a letter grade of B- or better to receive credit for this Core class.

I. Written Assignments: 65%

This course is designed to be a practical, hands-on introduction to issues related to action research, data collection, data analysis, and interpretation of findings. The major assignments will assess your ability to apply research skills to an educational topic that you are interested in as well as your ability to make sense of others’ research.

1. Survey construction, data collection, and data summary (15%) – due 10/2/1
2. Partner interview and mini case study (10%) – due 10/24
3. Dataset assignment: Application of research questions, hypotheses, and quantitative data analysis techniques to existing dataset (5%) – due 11/13
4. Research plan and self-reflection (20%) – due 11/20
5. Facilitated discussion (15%) – due 11/27

Details about each assignment are provided below, after the Course Schedule.

Assignments must be submitted to the instructor in Blackboard before 10:00 p.m. on the due date. Please name the file Lastname_Firstname_survey (for the survey assignment), Lastname_Firstname_dataset1 (for the first dataset assignment), etc. It is your responsibility to ensure that the instructor receives your documents. Five points per day will be deducted from any assignment turned in late.

All work must be written in APA style, using MS Word. Font must be Times New Roman, 12-point, and double-spaced, and margins must be 1-inch. Additional information is provided below about each assignment.

II. Participation and discussion: 100 points (35% of grade)

Participation is defined as active contribution to group activities, completion of Discussion Boards, and completion of Journal assignments (details provided below). You are expected to participate in all activities in a professional manner. Any unprofessional behavior will result in zero credit for this portion of the grade.

If you miss one participation assignment, you must meet with the instructor to discuss a plan for preventing future missed work. Furthermore, if you miss a participation assignment, you will not receive participation credit for the missed work, regardless of the reason for non-participation. Please keep the instructor informed of any emergency circumstances before an absence occurs so that alternative plans can be arranged. More than one missed assignment may result in administrative withdrawal from the class.

Participation activities and percentage of overall course grade

1. Journal entry 1 (5%) – due 9/11
2. Journal entry 2 (5%) – due 10/9
3. Journal entry 3 (5%) – due 11/7
4. Discussion board introductions (5%) – due 8/28
5. Discussion board 1 and responses to peers (5%) – due 9/4
6. Discussion board 2, responses, and final response (5%) – due 10/23
7. Discussion board 3, responses to peers, and final response (5%) – due 11/6

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<tr>
<th>Grade</th>
<th>Grade Points</th>
<th>Numeric Range Set by Instructor</th>
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<tbody>
<tr>
<td>A</td>
<td>4.0</td>
<td>93 – 100</td>
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<tr>
<td>A-</td>
<td>3.7</td>
<td>90 – 92</td>
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<tr>
<td>B+</td>
<td>3.3</td>
<td>87 – 89</td>
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<tr>
<td>B</td>
<td>3.0</td>
<td>83 – 86</td>
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<tr>
<td>B-</td>
<td>2.7</td>
<td>80 – 82</td>
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<tr>
<td>C+</td>
<td>2.3</td>
<td>77 – 79</td>
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<tr>
<td>C</td>
<td>2.0</td>
<td>73 – 76</td>
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<tr>
<td>C-</td>
<td>1.7</td>
<td>70 – 72</td>
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<tr>
<td>D+</td>
<td>1.3</td>
<td>67 – 69</td>
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<tr>
<td>D</td>
<td>1.0</td>
<td>60 – 67</td>
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<td>F</td>
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<td>&lt; 60</td>
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**Student Accommodations**

In accordance with Section 504 of the Federal Rehabilitation Act of 1973 and the Americans with Disabilities Act of 1990, the instructor will make all possible and reasonable adjustments in policies, practices, services, and facilities to ensure equal and optimal educational programs and activities. Whenever a special accommodation is necessary to ensure access to full participation by students with disabilities, the student must inform the instructor of any disability or needed accommodations.

The University Office for ADA Compliance may ask to seek proof of disability and specify accommodations as requested by students. Students with special needs should inform the instructor within the first two weeks of class. Students must also contact the Office of Counseling and Disability Services (2nd floor of Crooker Center) by calling Dr. Rose Signorello at 713-525-3162 or Ms. Debbie Jones at 713-525-6953; the Office is open 8-5 Monday through Friday.

The accommodations will become official when the instructor receives official, written notification from the officer in charge of ADA compliance. Students should contact the instructor immediately if new needs arise. Students can see the instructor before or after class or request another time to discuss any matters. All information will be confidential.

**Professional Standards of Behavior for Students and Faculty**

**Academic integrity**

Master’s-level students in the School of Education demonstrate integrity in all of...
their activities, both personal and professional. Any unprofessional behavior or failure to adhere to the honor system is a serious violation of integrity and may result in failure of the course.

**Plagiarism** involves taking credit for another person's work. You must cite sources in APA style any time source material (e.g., books, journal articles, internet material, etc.) has been used, paraphrased, or quoted. Quoted material must be placed in quotation marks and referenced appropriately. Please note that copying information directly from a source without giving credit, using friends' work, buying papers online, re-using one's own work from previous classes, etc., all constitute plagiarism.

Any instance of plagiarism will result in failure of the course and may result in dismissal from UST. Ignorance is no excuse; if you remain uncertain about the guidelines for using and citing source material after these issues are addressed in class, you should seek input from the instructor.

<table>
<thead>
<tr>
<th>Technology Requirements and Guidelines</th>
<th>This course relies heavily on Blackboard 9, which is best viewed in the Firefox or Chrome browser. (A free download can be obtained at <a href="http://www.firefox.com">www.firefox.com</a> or <a href="http://www.google.com/chrome">www.google.com/chrome</a>.) Please familiarize yourself with Blackboard through the tutorial (in the Start Here! menu). Additional information about technology requirements, skills, and Netiquette can be found on the Start Here! page in Blackboard.</th>
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<tbody>
<tr>
<td>Use of UST email accounts</td>
<td>You are encouraged to use your UST email account. The instructor may send messages to through Blackboard, which uses your UST address. If you have linked your UST account to another account, be sure to periodically clean out your UST mailbox so that it doesn't become overloaded (which can prevent you from receiving new emails).</td>
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<tr>
<td>Instructor availability</td>
<td>The instructor will be available for consultation during office hours and during scheduled appointments. It is strongly recommended you not wait until too late in the course before seeking guidance. Please come prepared with questions so that the consultation time can be spent effectively.</td>
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<tr>
<td>Language diversity</td>
<td>The University of St. Thomas values the ability to speak more than one language. The Master’s programs at UST are especially sensitive to issues of language diversity. The instructor is available to meet with you if you need help with written English. In addition, computer support is available if you need additional review of English fundamentals.</td>
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# Course Schedule, Learning Outcomes, and Assignments

<table>
<thead>
<tr>
<th>Learning Module</th>
<th>Date</th>
<th>Instructional Focus</th>
<th>Learning Outcomes</th>
<th>Activities</th>
<th>Assignments due</th>
</tr>
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<tbody>
<tr>
<td>Orientation</td>
<td>1/12</td>
<td>Orientation and Introduction</td>
<td></td>
<td>✓ Review syllabus. ✓ Read course policies carefully (in syllabus). ✓ Take orientation quiz (ungraded).</td>
<td>✓ Discussion Board Introductions due 8/28</td>
</tr>
<tr>
<td>1</td>
<td>1/12</td>
<td>What is action research? Values, assumptions, and process Ethics in research</td>
<td>1</td>
<td>✓ Mini-lecture ✓ Reading (see Blackboard) ✓ Watch all ethics videos (linked in Blackboard).</td>
<td>✓ Discussion Board 1 – initial post due 8/28</td>
</tr>
<tr>
<td>2</td>
<td>1/19</td>
<td>Who am I as an action researcher? Developing your research identity</td>
<td>1</td>
<td>✓ Reading (see Blackboard) ✓ Complete Rokeach Values Survey (linked in Blackboard). ✓ Review overview of reflective journaling.</td>
<td>✓ Respond to group member’s Discussion Board 1 post due 9/4</td>
</tr>
<tr>
<td>3</td>
<td>1/26</td>
<td>What would happen if...? Formulating action research questions and hypotheses</td>
<td>2</td>
<td>✓ Mini-lecture ✓ Submit your topic in the Research topic Wiki (ungraded)</td>
<td>✓ Journal entry 1 due 9/11 ✓ Research topic Wiki due 9/12</td>
</tr>
<tr>
<td>4</td>
<td>2/2</td>
<td>What do people think about...? Survey construction and data collection</td>
<td>3</td>
<td>✓ Mini-lecture ✓ Create survey and administer it (see instructions below). ✓ Video on data management ✓ Enter data into spreadsheet.</td>
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<tr>
<td>5</td>
<td>2/9</td>
<td>What are the data telling me?</td>
<td>3</td>
<td>✓ Reading (see</td>
<td></td>
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<td></td>
<td>2/16</td>
<td>Are my results meaningful? Sampling, reliability, and validity</td>
<td>3</td>
<td>✓ Reading (see Blackboard) ✓ Mini-lecture ✓ Self-check quiz (optional, ungraded) ✓ Survey, data spreadsheet, and data summary due 10/2</td>
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<td>7</td>
<td>2/23</td>
<td>What is this person’s experience? Qualitative research methods</td>
<td>4,5</td>
<td>✓ Reading (see Blackboard) ✓ Mini-lecture ✓ Find and read a qualitative article on your research topic (for DB2). ✓ Begin developing questions for interview. ✓ Journal entry 2 due 10/9</td>
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<tr>
<td>8</td>
<td>3/2</td>
<td>Application and evaluation of qualitative research</td>
<td>4,5</td>
<td>✓ Watch video on qualitative research ✓ Conduct partner interview for mini case study (see instructions below). ✓ Discussion Board 2 – initial post due 10/16</td>
<td></td>
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<tr>
<td>9</td>
<td>3/16</td>
<td>Are these two factors related? Non-experimental research methods</td>
<td>4,5</td>
<td>✓ Reading (see Blackboard) ✓ Mini-lecture ✓ Find and read a quantitative article on your research topic. ✓ Respond to group’s Discussion Board 2 posts due 10/23 ✓ Mini case study</td>
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<tr>
<td>Week</td>
<td>Date</td>
<td>Topic</td>
<td>Sections</td>
<td>Requirements</td>
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| 10   | 3/23 | Application of non-experimental research methods | 4,5 | ✓ Reading (see Blackboard)  
✓ Video on correlation coefficient  
✓ Video on unpaired t test  
✓ Video on chi-square analysis  
✓ Discussion Board 3 – initial post due 10/30  
✓ Begin working on research plan. |
| 11   | 3/30 | Did this group improve? Quasi-experimental research methods | 4,5 | ✓ Reading (see Blackboard)  
✓ Mini-lecture  
✓ Respond to group’s Discussion Board 3 posts due 11/6  
✓ Journal entry 3 due 11/7 |
| 12   | 4/13 | Application of quasi-experimental research methods | 4,5 | ✓ Reading (see Blackboard)  
✓ Video on paired t test  
✓ Video on effect size  
✓ Course evaluation  
✓ Dataset assignment due 11/13 |
| 13   | 4/20 | Does this intervention work? Experimental research methods and data analysis | 4,5, 6 | ✓ Reading (see Blackboard)  
✓ Mini-lecture  
✓ Video on one-way ANOVA  
✓ Video on repeated measures (mixed) ANOVA  
✓ Research plan and self-reflection (in e-portfolio) due 11/20 |
| 14   | 4/27 | Course wrap-up | 6 | ✓ Facilitated discussion (and responses) due 11/27 |
The instructor reserves the right to make changes to this syllabus during the semester. Please check Blackboard on a regular basis for updated information, announcements, and handouts.
Description of Assignments

I. General information: All major assignments should include an APA cover page. Citations and references, when used, should be in APA style. Please use Times New Roman 12 point font, double-spaced text, and 1-inch margins.

II. Major Assignments (65% of grade)

1. Survey construction, data collection, and summary (15% of grade):
   - You will create a brief (10-15) item survey on an educational topic of interest to you. The survey must include at least one quantitative (numeric) item and at least one qualitative (open-ended) item.
   - You will then give the survey to at least five people you know outside of class (e.g., friends, family members, colleagues) and to at least five classmates. Note: Your professor will facilitate data collection among classmates so that this will go smoothly and swiftly.
   - Using techniques you learn in class, you will organize this information in a spreadsheet and select two techniques for summarizing the data (e.g., mean and standard deviation for quantitative items; summary of themes for qualitative items).
   - You will then apply these techniques to the dataset and present the results. Results should include a one-paragraph summary of the findings and a table or figure depicting some aspect of the quantitative or qualitative data.
   - You will submit the survey, the spreadsheet, and the summary (as three separate files) in Blackboard.

2. Partner interview and case study (10% of grade): You will choose a partner from your group and identify 4-5 questions that you would like to ask him/her related to your research topic. You will then conduct the interview (by phone, webconference, or email, or in person) and write a 1-2 page summary of your findings. It is recommended that you think of a few questions that are related to your research topic, but keep in mind that not all people will have experience with all topics. Be sure to keep your research questions flexible.

3. Dataset assignment – Research questions, hypotheses, and data analysis techniques (5% of grade): You will receive a dataset from your professor that includes several variables. Using this dataset, identify two possible research questions. For each question, formulate a hypothesis about how the results will turn out. Then use the appropriate data analysis technique to determine whether your hypothesis is supported or not. Use the following format when submitting this assignment (note that the actual content of these will depend on the variables and questions selected):

   Example:

   Research question: Do fifth grade girls and boys differ on their end-of-year math test scores?
**Research hypothesis:** Fifth grade girls’ mean end-of-year math test score will be higher than fifth grade boys’ mean end-of-year math test score.

**Data analysis:** A t test comparing the mean end-of-year math test scores for fifth grade girls ($N = 50, M = 85.5, SD = 5.8$) and boys ($N = 39, M = 73.2, SD = 8.1$) was significant: $t(87) = 8.34, p < .001$. Thus, the hypothesis was supported, as the girls’ mean score was significantly higher than the boys’ mean score.

4. **Research plan and self-reflection (20% of grade):** After selecting an educational topic of interest (which can be the same topic that you wrote about in 6326 or a new topic), you will create a brief research plan describing a practical research study that you could conduct in the future. (Note: You will not conduct the study as part of this class.) The plan may involve primarily quantitative methods, primarily qualitative methods, or both. Furthermore, you may choose to propose an action research project (in which you are an active participant and a major focus of observation) or a traditional research project. The plan should be 5-7 pages (not including cover page and references) and will include the following:

- **Brief literature review (3-4 pages):** Introduce your topic and synthesize the findings of four or more peer-reviewed journal articles on this topic. You may use the same articles that you used in the annotated bibliography that you wrote in 6326, if you are examining the same topic. End this section with a **statement of the research question or hypothesis.**

- **Description of method (2-3 pages):** Present your plan for collecting data. You should include paragraphs that answer the following questions (with APA Level 2 headings for each paragraph):
  
  - **Participants:** Who would participate in your study?
  
  - **Measures:** What questionnaires, tests, interview questions, or other instruments would you use to collect data? Be sure to explain how you would improve the reliability and validity of these methods.
  
  - **Design and Procedure:** What type of research design would you use, and what steps would you take to collect data?
  
  - **Data analysis:** What data analysis techniques would you use to make sense of your data?

- Note that, in addition to submitting the research plan, you should include a **2-3-page self-reflection on how the plan reflects your growth as an action researcher.** The self-reflection will constitute 5% of your grade, and the research plan will constitute 15%. Please upload both documents separately in your e-portfolio (developed in EDUC/COUN 6326).

5. **Facilitated discussion (15% of grade):** Each group will experience a facilitated discussion. You should prepare a brief (1-2 paragraphs) overview of your research question and research plan. Prepare 2-3 questions for the group that will stimulate discussion. For example:

- **Is this a topic you have encountered in your own work?**
What do you think the findings of this study would be, and why?

How would you strengthen the design?

(Note: You do not have to use these questions; you are encouraged to develop your own as you see fit.)

Post your overview and your questions in the designated place in Blackboard by the due date. Then review your group members’ overviews and questions and respond to at least one question for at least two of your group members. Responses to each post should be at least three sentences. Note: You will have one initial post—your own summary and questions—and at least two responses—one to each of two group members’ posts. You are also encouraged to respond to peers’ responses, but this is not required.

III. Participation Assignments (35% of grade)

1. **Discussion Board assignments (20% of grade):** The purpose of Discussion Board assignments is to stimulate further conversation about research methods and results. For Discussion Board 1, you will watch a video, respond to a prompt, and then respond to one of your group members’ posts.

   For Discussion Boards 2 and 3, you will select an empirical journal article on a topic of interest (these can be the same journal articles that you include in the literature review section of your research plan, or they can be different articles). Note that “empirical” means that the article includes a method section and results.

   a. Initial post: You will summarize the focus of the study, the authors’ hypothesis or hypotheses (or research question, if qualitative), and what method and test(s) the authors used to test their hypotheses or what techniques were used to examine their research questions. Be sure to provide a citation for the source, and include a page number for any material that you reproduce verbatim. **Please do not include the results of the study in your initial post!**

   b. Initial responses: You will also respond to two discussion board posts and indicate whether you think the authors’ hypotheses were supported (or what you think the answer to the research question was), and why.

   c. Final responses: You will respond to others’ guesses by reporting what the findings of the study were. For example:

   **Initial post (by Student #1):** Watson, Harper, Ratliff, and Singleton (2010) examined the contributions of holistic wellness and perceived stress to teachers’ perceived job satisfaction. The authors posed four questions:
   1. What are the levels of wellness, perceived stress, and teaching satisfaction among beginning teacher participants?
   2. What is the relationship among wellness, perceived stress, and teaching satisfaction?
   3. To what extent can the variance in teaching satisfaction be accounted for by wellness and perceived stress?
   4. To what degree are there differences in wellness, perceived stress, or teaching satisfaction among the study participants based on age, classroom setting, or type of school district? (p. 30).
The authors did not make any specific hypotheses, as it was an exploratory study. They conducted a survey with 53 K-12 beginning teachers. They used multiple regression to examine the roles that holistic wellness (measured by the Five Factor Wellness Inventory) and perceived stress (measured by the Perceived Stress Scale – 10 item version) played in job satisfaction (measured by the Teaching Satisfaction Scale). They also used multivariate analysis of variance to determine whether there were differences in these variables among participants of different ages, different grade levels, or different campus locations.


Initial response (by Student #2): I think that there will be a positive relationship between wellness and teaching satisfaction and a negative relationship between perceived stress and teaching satisfaction. In my experience, any time I feel stressed, I find it harder to cope with my job—and smaller things irritate me. In contrast, when I feel calm and confident, I am highly satisfied with my job and enjoy being a teacher.

Initial response (by Student #3): I agree with the previous post. I also think that stress will be more important than wellness in explaining job satisfaction. Even a teacher who is physically and psychologically very healthy might experience strong dissatisfaction with teaching when faced with too much stress in the classroom.

Final response: First, the authors found that the teachers’ stress levels and job satisfaction levels were similar to those found in previous studies. However, their well-being levels were higher than those found in previous studies. Second, as Student #2 predicted, they found that perceived stress was negatively related to well-being and to job satisfaction, whereas well-being was positively related to job satisfaction. Third, as Student #3 predicted, when both perceived stress and well-being were taken into account, only perceived stress was a significant predictor of well-being. Finally, there were no differences among the demographic groups in terms of the variables. [Note: You should use your classmates’ names in your final response—not “Student #1” and “Student #2,” etc.]

Please pay close attention to due dates for these two discussion boards, as they require multiple responses by all students.

2. Journal entries (15% of grade): You will complete three journal entries that involve self-reflection about action research, social justice, and your own work. These will be shared with the professor, who will grade them in terms of completeness, organization, and writing. The goal of these journal assignments is to encourage you to think about how various action research concepts might be useful in your day-to-day work, and to reflect on how action research can be used to promote social justice. Journal entries should be a minimum of three paragraphs. Journals will only be seen by you and the instructor.