

## **Active Learning Approaches to Improve Teachers Research Skills Using Virtual Classroom Tools During COVID-19 Pandemic**

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### **Acknowledgements**

I want to thank all my graduate teacher students who demonstrated during Pandemic COVID19 challenging times so much professionalism, commitment, perseverance and resilience to explore ways to achieve their educational research competencies. I'm also grateful to the Student Success-Academic Learning Center Team of the Arecibo Campus of the Inter American University of Puerto Rico that provided me with different professional development workshops to learn how to incorporate these active learning approaches to my virtual online teaching practices. And finally, thanks to my colleagues for their commitment and inspiration to continue learning, teaching and leading to achieve excellence in education, no matter the challenges we face.

**Active Learning Approaches to Improve Teachers Research Skills**  
**Using Virtual Classroom Tools During COVID-19 Pandemic**

**Abstract**

This paper is intended to share my academic experience in a research course with teachers during COVID-19 Pandemic. The objective is to describe various active learning teaching approaches that I experimented with considering virtual classroom learning curriculum resources. These activities were conceptualized and incorporated into the course during academic recess and social curfew in Puerto Rico.

After days of professional reflection, recommendations from my academic educational leaders and related readings, five active learning approaches were selected to achieve the intended learning outcomes in a Graduate Teacher Level I, Research Course. These were: (1) using collaborative virtual classrooms, (2) providing constant motivational feedback, (3) using thinking, pairing and sharing information, (4) using authentic assessment to improve learning and (5) promoting professional research reflection to constantly improve my teaching and research skills in collaboration with the teachers.

*Keywords:* Virtual Learning, Teacher Research, Active Learning, COVID19  
Pandemic

## **Background**

I started to use synchronous virtual classrooms in a research project course when the Pandemic COVID-19 was announced. The benefits of using synchronous virtual classrooms is well documented (Politis & Politis, 2016). In this case, the institution provided me with different professional development online workshops to understand how to incorporate active learning approaches using Virtual Learning Experiences.

Collaborative Virtual Classroom (CVC) was used to re-design the curriculum to integrate and apply online active learning experiences using virtual discussion boards. Initially, this learning tool helped me instruct teachers in the application of the American Psychological Association (APA) research paper guidelines to allocate available peer review journals, and to consider the use of different assessment tools, such as rubrics and focal listings, to achieve specific course learning objectives. Using CVC was very useful in identifying and teaching how to effectively search recommended research data bases provided by our institution. Some of these were provided by the Center for Access Information Center, commonly known in our institution as CAI (Universidad interamericana de Puerto Rico, 2021)

After three initial sessions using CVC I observed the following learning achievements: (1) teachers were critical in the selection (delimitation) of the research theme or topic of interest and critiqued others, (2) they collaborated sharing different Educational Open Access Research Resources, that they understood were more user friendly, and (3), they formulated very interesting essential “WHY” questions to each other, related to the statement of the problem of their research project. In other words, teachers were motivated to collaborate with their peers and reflect upon fundamental

research concerns in a professional, reflective and collaborative manner. I could notice that students were motivated to learn and achieve learning outcomes.

### **Motivational Research Feedback (MRF)**

Multiple studies demonstrate the benefits of using immediate feedback as an active learning approach to motivate and improve student learning (Wisniewski, Zierer, & Hattie, 2020). Although many faculty members that teach online courses are reluctant to share their personal phone numbers with students, that was not my case during COVID-19 months. I noticed, in initial online virtual synchronous conversations, that teachers were experiencing very stressful pandemic issues as documented by Florian, Federkeil, Heinschke, & Jungmann (2020). So, I understood that they needed immediate MRF and academic support to help them overcome particular professional teaching challenges and at the same time assist them in achieving all research learning objectives of the course.

To overcome these situations, at the beginning of the course I made some important inquiries. First, I asked teachers about their educational background and current teaching challenges and experiences, as well as future educational leadership professional goals. Second, I assisted them as a group to identify their specific areas of research interest. Third, I asked about their experiences conducting research, and lastly, I told them to be as calm as possible, since I was assuming the role of an instructional leader to assist them in overcoming their professional and research learning challenges as recommended by Le favre & Robinson (2014).

My intentions were to make thorough annotations of all teachers' relevant information so that when they called me or participated in our online virtual meetings, I

could better understand and listen to specific professional and learning concerns and provide MRF. This strategy helped me connect with them in a proactive way. I gave them immediate positive feedback with specific recommendations or actions to improve their research skills.

To achieve the intended research learning outcomes, I recommended they have available on hand the assessment rubric that was created to evaluate the structure of the research project. Using the assessment rubric was an effective way to assess and provide personal insight, as well as motivational feedback, helping them to set achievable short term research goals as documented by Brookhart (2013).

Research courses are overwhelming, and more complex in moments when teachers are on a daily basis using virtual classrooms and considering COVID-19 Pandemic educational issues. So, as an instructional leader, my intentions were to provide motivational feedback and let them know that someone cared, understood and wanted to be of help. I felt professionally compelled to assist them in improving their research skills to overcome teaching and learning challenges confronted during the pandemic. Netolicky (2020) provides valuable information related to these issues. For example, I noticed that when teachers called me for the third time, they were more relaxed, focused, motivated and empowered to overcome professional issues and share academic research challenges with other students in the virtual classroom.

### **Think, Pair and Share (TPS)**

TPS is a basic common active learning approach recommended by experts to achieve specific learning outcomes and student success. And, to my surprise, it is also recommended in virtual online courses (Robertson, 2018). This approach was used to

initiate reflective discussions considering the conceptualization, development and drafting of the research project and the relevance of the study.

Teachers were motivated to critically reflect about the first draft of the research question that they had in mind. It is important to note that at this moment they had already dedicated time to outlining and writing the first draft of the background and statement of the problem. Also, they had already demonstrated, with statistical and empirical data, the magnitude of the problem to be studied and the possible theoretical framework to explain it. Then, using the online virtual discussion board, I asked students to read aloud each intended research question and possible theoretical framework to explain the statement of the problem. Next, the group would write it down. I usually gave them five minutes to think and reflect about the proposed question and its educational relevance. I concluded by giving them the opportunity to share their ideas, observations, and concerns or recommendations related to the first draft of the research question. This experience was very enlightening and helpful for teachers to clarify intended research projects. Further research is recommended about using TPS to improve teacher research question formulation, as well as other areas for the development of an educational research project.

### **Assessment Research for Improvement (ARI)**

After many years teaching research, I have to agree with Tindowen, Guzman, & Macanang (2019) that the three most challenging research skills that teachers need to improve are: (1) identification of the problem of the study, (2) to search for relevant scientific literature with empirical data, and (3) how to interpret findings of other studies

to incorporate them in their research projects. To overcome these specific challenges, I designed, developed and validated three specific online digital assessment focal lists.

These focal lists, or focus listings, were created to promote activities that guide insight and direction for student-teachers to brainstorm, identify, organize and reflect upon specific sub-section contents of the research project as recommended by Yee (2020). In this case, I proof-read and assessed, with active participation of the teachers, each section of the research project at least three times before it was finally submitted. This type of authentic assessment activity helped students to improve specific tasks to demonstrate meaningful application of essential course competences, knowledge and skills.

The following table is an example of one of the assessment focal lists that was used with teachers to improve their research project skills.

Table 1: Assessment Focal List used with teachers in the Education Research and Application Project Course during COVID19 Pandemic.

<b>ASSESSMENT FOCAL LIST EDUCATION RESEARCH PROJECT I</b>
<p><b>BACKGROUD OF THE PROBLEM</b> (<i>Expected Outcome: Two pages of factual information with convincing arguments and supporting ideas of the problem or issue to be studied. Focus on the dependent variable.</i>)</p> <ul style="list-style-type: none"> <li>• Describe the problem or issue you are concerned about. Be specific and delimit the problem to a context.</li> <li>• Convince the reader with facts, data or empirical information on the problem you are concerned with, but most of all why it is important to investigate. Remember to be objective.</li> <li>• Summarize information of available educational, legal, standards and procedures or curriculum documents that recognize the importance and need to study and improve the problem or issue of your research project.</li> <li>• Demonstrate and argue with facts of results of other related studies (peer-reviewed) that you are not the only one concerned with the problem. Remember that you are part of a scientific community of learning. Don't forget to follow APA (latest edition) writing research guidelines in all the document.</li> </ul>

**STATEMENT OF THE PROBLEM** (Expected Outcome: 2-3 pages of theoretical positions of how to study the problem or possible related factors. Focus on the relation of the variables. Remember, this is your thesis statement. Take a Stand).

- Summarize the expressions of different expert or theoretical authors in the field of study, pointing out the need to conduct research and address the problem raised.
- Synthesize relevant information from local, national, international or recognized worldwide organizations that support the need to eradicate the problem.
- Describe possible factors that may be associated with the problem.
- Identify conceptual or educational philosophical expressions by experts that scientifically demonstrate the way to study the problem previously stated.
- Cite recent main scientific expressions that support the use of the theory you selected to address the problem under investigation. Be convincing.

**RESEARCH QUESTION** (Expected Outcomes: 25% of a page including the specifics of what is going to be studied. Share your possible research question with others after deciding WHY using course online FORUM.)

- Write at least one research question considering the scope or context of the study. Remember to consider your available resources, previous research experiences and time frame.
- Remember to include in the question, the variables described and argued upon in the previous two sections of the research project.
- Write the research question in a brief and clearly expressed manner. Keep it simple. *“One Small Step for Man, One Giant Leap for Mankind”*.

### **Inspiring Professional Reflection (IPR)**

Reflection is the most powerful human state of mind that inspire teachers to conduct research in order to change or modify practices to achieve all students’ academic success. I understand that professional reflection can motivate teachers to answer the most important research teaching and learning question of them all: WHY?

Schön (1987) recognizes the importance of extensive dialogues between teachers and students to promote reflection-in-action to encourage behaviors or attitudes that promote professional improvement for both teachers and students. So, after my graduate teachers had completed all final coursework evaluation criteria, including the research



project of about 20 pages of content, I invited students to voluntarily meet with me one more time in our Research Virtual Room.

After a couple of joyful salutations and achievements (related to the research project proposal), I randomly selected the name of one of the volunteers and asked: *“Student X, could you please share your research question one more time with the group?”* After it was read, and twenty seconds of silence, I asked the group: *“Can anyone try to answer WHY it is important to answer that research question?”* Finally, one student responded: *“to learn, to teach and to lead, using educational research based practices.”* “Thank you all; class dismissed.”

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