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EVALUATING QUALITATIVE INQUIRY OF STUDENTS' REFLECTIONS AND EXPERIENCES IN AN EDUCATIONAL RESEARCH COURSE

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Abstract

Student reflections and research about them play critical roles in the teaching and learning process. While student reflections improve academic achievement, research conducted by a teacher about students' learning enables him/her to create new teaching methods which are responsive to current educational needs of students. In a recent study, the essential focus was on exploring trainee teachers' reflections on the 'Teacher as a Researcher' course they completed. This qualitative case study, conducted within an interpretive paradigm, utilized documentary analysis of students' learning journals using Gibbs' reflective cycle as a theoretical framework. The findings revealed that the course enhanced student engagement and empowered them to apply effective pedagogical approaches that would be beneficial for their future teaching endeavors. The study concludes that student teachers' reflections play an indispensable role in developing critical thinking and inquiry skills. This research highlights the importance of encouraging students to reflect on their learning experiences and the value of teachers engaging in research specifically focused on student reflections to enhance their teaching methods

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1. Introduction

Teachers are encouraged to engage in research to improve their teaching practices. According to Laurillard (2008), teachers should act as researchers to gather information about students' learning and enhance their teaching methods. Flake and Kuhs (1995) suggest that the role of a teacher should be reinvented to that of a researcher. In Finland, teacher educators integrate research into teaching to improve instructional methods and enhance students' learning experiences (Cao et al., 2023). Taylor (2017) also emphasizes the importance of teachers becoming researchers. This shift has implications for the curriculum of trainee teacher programs, which should integrate research courses to empower future teachers with the necessary knowledge and skills.

Applying research to the teaching process allows teachers to test, implement, and evaluate new teaching methods that are responsive to the needs of their students. This approach can improve student engagement and academic achievement (Meredith et al., 2023; Tillema & van der Westhuizen, 2006). Reflection is also important for teachers when conducting action research.

1.1. Reflection as a tool for learning

Reflecting on research results about students' learning is crucial for teachers' professional growth. Dewey (1933) argued that reflections must be integrated into students' learning as they play an integral role in the teaching and learning process. Student reflections shape the entire teaching and learning process. Chang (2019) reiterates this, emphasizing the importance of reflection in education. It enhances students' learning experiences by deepening their understanding of content, fostering personal growth, and critical thinking (Hojeij et al., 2021).

Reflection enables students to learn from their mistakes and best practices (Chang, 2019). Helyer (2015) also emphasizes the importance of learning from the past to avoid repeating mistakes. Mason and Singh (2010) highlight how reflections help students develop effective inquiry and problem-solving skills, promoting higher-order thinking.

Reflection in a flipped learning class increases student engagement (Romaker, 2023). After conducting action research in their classrooms, teachers should reflect on this to promote knowledge creation and democracy (Pine, 2009). It is important for a 21st-century teacher to reinvent the role and add research to teaching responsibility (Flake & Kuhs, 1995).

Promoting reflection often involves assigning students the task of maintaining learning journals, which encourages them to synthesize various learning experiences and enhances their cognitive processing abilities. Writing in learning journals reshapes students' existing knowledge and fosters the use of elaborative strategies (Nückles et al., 2004). Maintaining a learning diary significantly contributes to the development of students' metacognitive skills and increases self-awareness, potentially boosting intrinsic motivation (Nückles et al., 2004).

The purpose of this study is to investigate the reflections of teacher students in their learning journals regarding the recently introduced 'Teacher as a Researcher Course A' (TaRA) course. The goal is to assess the course's efficacy and utilize the findings to enhance the course content and its execution.

The primary research question is: What are the perceived benefits of the Teacher as a Researcher Course A (TaRA) course as reported by teacher students?

2. Method

2.1. Gibbs' Reflective Cycle for Data Analysis

Gibbs' reflective cycle, developed by Graham Gibbs (1988), was used in this study to analyze teacher students' reflections. Other reflection theories, such as Schön's reflective model (Schön, 1983) and Kolb's experiential learning cycle (Kolb, 1984), also exist. However, this study adopts Gibbs' reflective cycle due to its well-structured model, which enables students to write critical reflections (Adeani et al., 2020, p. 139) and facilitates deep learning and analysis of students' reflections (Sekarwinahyu et al., 2019, p. 2). Analysis of students' reflections is common in higher education as it fosters critical thinking skills (Walsh, 2014).

Gibbs' reflective cycle comprises six interlinked stages: description, feelings, evaluation, analysis, conclusion, and action plan (Gibbs, 1988). In the description stage, students provide a detailed account of what happened (Gibbs, 1988). Galli and New (2022) suggest that this stage involves answering the question 'what happened?' and providing background information. In the *feelings* stage, students express their emotions and thoughts during the experience (Gibbs, 1988). Sekarwinahyu et al. (2022) agree that this stage portrays the narrator's thoughts and emotions. The *evaluation* stage involves the learner assessing the positive and negative aspects of the experience (Galli & New, 2022; Wain, 2017). This stage involves examining the advantages, disadvantages, and opportunities presented by the experience. During the *analysis* stage, students interpret the described experience by critically analyzing it from different viewpoints (Galli & New, 2022; Gibbs, 1988). In the *conclusion* stage, students reflect on what they could have done differently and summarize the lessons learned for the future (Sekarwinahyu et al., 2022; Wain, 2017). Finally, the *action plan* stage involves taking action based on the lessons learned from the reflection.

Data was analyzed using content analysis and thematic coding, following the recommendations of Creswell (2012) and Creswell and Poth (2018). The researchers organized and segmented the data, establishing codes that were then collapsed into themes. These themes were analyzed using first Gibbs' reflective cycle as an analytical framework. After that, the themes were categorized in three main classes to condense the information. The case study design allowed for an in-depth examination of the reflections of the first cohort of students at a higher education institution in the UAE, in line with Yin's (2018) support for using case studies for thorough analyses of specific phenomena.

2.2. Context of the Study and Participants

The study was conducted at a teacher training institution in the United Arab Emirates (UAE) with the institution's first cohort of teacher students, who were enrolled in the 5 ECTS credits TaRA course as part of the Postgraduate Diploma in Education program. The course utilized a flipped learning model, with 80% of classes being conducted online and 20% face-to-face. The assessment for the course included a learning journal, which students wrote at the end of the term, guided by Gibbs' reflective cycle. These journals were analyzed for the research using the same theoretical framework.

The participants in the study were 14 students from the first cohort of the institution, with two being males and the rest females, and all of them in-service teachers. Their ages ranged between 28 and 50 years. As part of their TaRA course, they were required to complete a reflective journal as one of the assessments, which served as the content for this research study. Purposive sampling was used to select the participants, as they were the first cohort of students at the institution and had completed the course, making them suitable for the study.

2.3. Data Collection

The study collected data through documentary analysis of students' guided learning journals, completed as part of the TaRA course. Using Gibbs' reflective cycle as a framework, participants submitted their reflections via the institution's learning management system, Canvas, freely expressing their experiences of the course.

2.4. Ethical Considerations

The study received ethical clearance from the institution, and all students consented to their reflective journals being analyzed. Participants were assured of their privacy and the option to withdraw their journals at any time. The study's purpose was explained, and participant anonymity was maintained by removing all identifying information. None of the participants asked for their learning journals to be removed from the data. Researchers conducted the analysis themselves to enhance trustworthiness and ethical consideration.

3. Results

The analysis yielded three primary themes, which are presented as follows: student engagement and empowerment, improved pedagogical principles, and plans for the future. The presentation of these results is guided by the stages of Gibbs' (1988) *reflective cycle*.

3.1. Student Engagement and Empowerment

Gibbs' reflective cycle's stages *description* and *feelings* fell under Student Engagement and Empowerment category.

3.1.1. Description

Students focused on the learning mode of the course (flipped learning), type of content that was studied (basic statistics) and engagement. One student who described the course in detail said:

We had online, blended and face-to-face classes which were well-planned, and activities were also appropriate for each learning mode. We had flipped learning classes where we had to study the materials on the self-study modules or eBooks prior to entering online classes. Upon entry into class, we shared what we studied, and the instructor was there to guide us.

Students were assigned to go through some readings and watch videos related to the topic prior to going to class. During class time, the instructor would not waste time repeating what students studied before

class but focused on applying the information in a classroom setting. The learning model increased student engagement as they were all expected to contribute since they watched videos and read assigned readings before class. This was confirmed by a student who said: “as students, we had to complete readings at home and work on real-time problems during class. This type of blended learning increased our engagement and learning.”

All students described the content that they studied during the eight weeks of the course. The content of basic statistics which students learnt was credited for being valuable to in-service teachers as they learned how to calculate marks for students and to analyze simple results of surveys conducted in classrooms.

A detailed description was provided by one student saying:

The course proved to me an introduction to the world of statistics. There were a few familiar terms such as mean, median and mode from high school Mathematics classes, along with a lot of new terms such as correlation and causality, standard deviation, variance, Chi-square and T-Tests. I learnt about the difference between quantitative and qualitative data, how to categorize data into various types such as ordinal, nominal, discrete and continuous. I also came to know about the six steps of research, why research is necessary, different types of sampling procedures, how to calculate risk, p-value and statistical significance.

3.1.2. Feelings

Feelings of despair and pessimism were dominant before students started learning the course and in the first week of studying it. Before the course began, students read the course outline and knew what the course was about. Students were worried that they were not going to enjoy studying because they did not have a background in Mathematics. The majority of students in the course did not have a background in Mathematics and they were worried that they were not going to make it. One student said:

I have to say, I am not a fan of numbers, statistics, or Math. When we started the course, I was very worried, I had prepared myself to just try and pass it. I assumed the course was very scientific and all about Math. Thankfully, I was wrong. The class was genuinely one of my best in the program.

Despite the fear of failing the course because of a lack of a background in Mathematics, students were exceedingly excited with the course and the support they got from the instructor and engagement they had among themselves. Their fear turned to feelings of contentment and positive well-being:

My fear abated after the first class. I had never felt so much warmth in a learning environment. The atmosphere was lively and collaborative, all thanks to our amiable instructor. The positive learning environment went a long way in making the supposedly complicated course easy for me. It is generally believed that a teacher’s personality matters in effective learning. This positive experience of mine further corroborates this claim.

Some of the students had majored in Mathematics in their first degrees and they were teaching the subject in schools. One would think that when one has a qualification in Mathematics, it would make the course easier. All the students, regardless of whether or not they had a Mathematical background, had to

apply their cognitive skills to work out statistical problems which were presented. A student who had a Mathematical background said:

Being a Math teacher, I thought it was going to be an easy ride due to the fact that I was very familiar with majority of the concepts but it was not all that rosy because there was a shift from what and how I had learnt how to calculate important concepts of statistics used in data science such as mean, median, mode, variance, and standard deviation. I was very thrilled to know and learn the approach of using tools such as online statistics calculator for mean, median, mode, minimum, maximum, and standard deviation, rather than using the formulas to calculate manually.

Students praised the flipped learning approach used in the TaRA course, finding it to be engaging and motivating. This is in line with Romaker (2023) who found that flipped learning increased student engagement in Mathematics. The approach allows students to study material before class and then apply their knowledge during lessons, aligning with LaFee's (2013) concept of flipped learning. Whether classes are in-person or virtual, flipped learning maximizes student engagement and enhances their learning experiences (Romaker, 2023).

The positive experience led students to feel satisfied and empowered to conduct research in their classrooms as in-service teachers. This aligns with Pine's (2009) idea that graduate teachers are inspired to conduct action research and contribute to knowledge democracies. This approach allows teachers to actively participate in knowledge production and promotes schools as knowledge democracies, where teachers provide leadership for collaborative and democratic knowledge construction (Pine, 2009).

3.2. Improved Pedagogical Principles

Evaluation and analysis in Gibbs' (1988) reflective cycle fell under improved pedagogical principles category in this study.

3.2.1. Evaluation

Sense of empowerment is one of the greatest themes that came out of students' reflections. Students felt that they gained comprehensive knowledge and skills necessary to conduct research in schools. One student stated: "I can now confidently converse about research in education and roll off the six steps of a simple research design - formulate research questions, produce materials, perform simple analysis and interpret and report the results."

Students felt empowered to conduct research as the course offered them flow experiences. This was confirmed by a student who said: "I really feel empowered after completing this course. It had the right mix of challenges and successes." Some students felt that the statistics and software they learnt were very necessary for them as teachers as they need to analyze classroom data which they collect from learners. A student who felt empowered said: "previously I had not worked with Statistical Package for Social Scientists (SPSS). Now, I feel more confident analyzing data. This skill is essential to me as a practitioner because as educators, we use data to inform our next teaching steps." The course did not only inspire students to do research in order to create smart lesson plans, but also to deliver quality and equitable lessons.

This was confirmed by a student who said: “This course is already helping me analyze data effectively and improve lesson delivery. It has also helped me identify learning gaps in my students and ways to address them promptly.”

Students felt their ability to implement in schools what they learnt from the course was one of the best things that happened. They learnt a lot more than they had before the course. A student supported this saying: “I am a more knowledgeable teacher than I was eight weeks ago. I strongly believe that being able to apply knowledge in real-world situations is the true essence of learning.”

Students did not only gain subject knowledge from the course, but also some soft skills which are essential graduate attributes for a 21st century educator. A student said: “the soft skills that I gained from the course include teamwork, collaboration, problem-solving, time management and critical thinking.”

The students also highlighted some challenges in their reflections. The most significant challenge that was consistently mentioned by all students was time management. They all conveyed difficulties in balancing their responsibilities as full-time in-service teachers, managing time for their families, and finding time to study both before, during, and after class.

The only challenge I had was time management. I did not have the time to read Creswell’s book on “Educational Research” and some other articles that were key to this course. Also balancing my work, home, and course time was a big issue for me.

3.2.2. Analysis

Students attributed their success in the course and positive experiences to the way they learnt from each other. One student said: “we gained a deeper understanding of the statistical topics through group discussions. We learnt from one another and relied on each other’s strengths to accomplish group tasks through collaboration”. Another student shared the same sentiment saying: “I liked the fact that we collaborated to get quality work done on our assignments. Moreover, we learnt from each other’s insights on the discussion platforms, and we were motivated to give our best”.

There were hands-on activities which were done during face-to-face classes. Students were intrigued by hands-on activities which they did collaboratively during data analysis. A student said: “I particularly enjoyed the hands-on activity on SPSS and how the instructor walked around all the groups countless times to ensure we were able to use the software effectively and efficiently.” Students noted that the course (particularly analyzing data on SPSS) would have been unbearable if they studied individually. A student confirmed this saying: “It would have been puzzling for me to navigate my way on the SPSS software. However, effective collaboration and the instructor’s expertise did the magic. I successfully analyzed data and interpreted charts and tables to draw reasonable conclusions. This, for me, was fascinating”.

Collaborative learning did not only take place during face-to-face classes, it also happened online when students were put into breakout rooms and encouraged to work together. A student confirmed the success of online collaboration saying: “we also had lots of group discussions via break-out rooms and chats. We had some online games/assessments as well which served as a knowledge check and evaluation.”

Timely feedback and feed forward were recommended for enhancing students’ experiences in the course. Students found the course challenging but were motivated to continue because of the constructive

feedback they were getting from the instructor. A student confirmed this, saying: “the instructor gave timely and accurate feedback that kept me motivated to complete all my tasks although I found them challenging.” Similarly, another student who was motivated by feedback said: “the instructor gave me insights that ended up in helping me ‘feed-forward’ towards more self-regulation.”

3.3. Plan for the Future

The Conclusion and Action Plan stages of Gibbs’ Reflective Cycle fall under the "Plan for the Future" category. Participants in the TaRA course were able to forecast the future by reflecting on their experiences, allowing them to consider how to apply their learning and make plans for further development.

3.3.1. Conclusion

Students felt that it would have been nice to actually conduct research and analyze the results. To fill this gap, one student said: “I intend to read the course book completely and the instructor’s latest book to get an idea about conducting research. Next year I will certainly conduct research on what makes a teacher deliver the learning outcomes better.”

Even though students did not have an opportunity to conduct real research, they found the course to be useful for them as teachers. A student confirmed this saying:

I used to think there was no need to study statistics as a teacher since it is not one of the major things we do in classes, but I have come to realize that without literacy in statistical methods, it is very difficult to keep up with modern society, especially in this era where statistical analysis has become more pronounced. Quantitative research was important because as teachers, we work on large numbers, so using this research method will help us evaluate our students performance and compare and analyze our teaching methods.

3.3.2. Action Plan

Students were motivated to conduct research and as part of their near future action plans, they would like to put knowledge and skills they learnt into practice by analyzing classroom data. A student confirmed this saying: “I should now try to take my classroom learning to my workplace and get involved in research and analyzing tasks by applying what I have learnt in this course.” Another student said:

For me, I have decided not to let the expert knowledge I gained in this course float away into oblivion. I have set plans to practice key knowledge of this course weekly until I attain mastery. Also, I have begun to apply them to my students’ data to be able to decipher its value in my professional life. Furthermore, I would research more on specific areas of quantitative research to deepen my knowledge and understanding.

4. Discussion

The Teacher as a Researcher course A (TaRA) was found to be effective in equipping classroom instructors with the skills to conduct research in their classrooms. The course provided comprehensive knowledge and empowered teachers with scientific methods to collect and analyze data, aligning with the argument made by Flake and Kuhs (1995) that teachers should also take on the role of researchers in addition to teaching. Participants in the study expressed their intention to use research to better support students with diverse learning needs in the future. Research will serve as a tool for teachers to understand and cater to the individual needs of their students, as highlighted by Pine (2009) and Banks (2015).

Furthermore, participants expressed that they had learned new pedagogical methods. They reported that the TaRA course enhanced their pedagogical approach, particularly in collaborative learning. The course utilized various collaborative approaches, inspiring participants to adopt and adapt this method in their teaching. Tillema and van der Westhuizen (2006) argue that collaboration is a key component among teachers, leading to improved student achievement and teacher job satisfaction (Meredith et al., 2023).

Additionally, participants expressed a desire to carry forward the practice of providing constructive and timely feedback to inspire and motivate their future students. Desimone (2023) emphasizes the pivotal role of teacher feedback in enhancing student learning, while Rababah et al. (2023) argue that timely feedback is crucial for student improvement and academic success.

Overall, the course was effective in equipping teachers with the necessary skills and knowledge to conduct research and improve their teaching methods to better support their students' diverse learning needs. The TaRA course appeared to provide a good starting point for preparing classroom instructors to conduct action research which is consequential. The course empowered teachers with comprehensive knowledge and skills to conduct research and apply scientific methods to collect and analyze data. This concurs with Flake and Kuhs (1995) who argue that there is a need to reinvent the role of a teacher and make him/her a researcher in addition to teaching. Aspden et al. (2022) highlighted the key shift of a teacher's role to include research so that he/she can develop new methods of teaching which are responsive to current educational problems.

Although this study reported positive findings, it is important to acknowledge several limitations. One such limitation is the small sample size, which may restrict the generalizability of the results. To ensure broader applicability, future research should aim to include a more diverse and representative sample of participants. Additionally, the study's reliance on predetermined questions for student reflections, created by the instructor, may have constrained the depth and breadth of the students' responses. This limited the opportunity for students to provide a more comprehensive and unrestricted reflection on their experiences. Furthermore, while Gibbs' reflective model (1988) is a valuable framework, its reliance on a specific set of stages may have restricted the scope of students' responses. It's important for future research to consider alternative reflective models that allow for a more expansive and nuanced exploration of students' experiences.

In conclusion, this study emphasizes the significance of promoting student reflection and teacher research to investigate them to improve teaching methods. It underscores the need for collaboration between educators and students in exploring teaching and learning experiences. Ultimately, successful courses are built on a foundation of mutual interest and willingness to reflect on and enhance the learning process.

Data Availability Statement

Data is available upon request.

Declaration of Conflicts Interests

The authors would like to declare that they have no conflict of interest to disclose.

Ethical Statement

Ethical approval for this study/case/case series was obtained from *Sharjah Education Academy's Research Ethics Committee. (APPROVAL NUMBER/ID: SEA01-2022-12. Issue Date: 05 Dec 2022)

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