Navigating Inclusive Curriculum Innovations of Field Studies in Science Education

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ABSTRACT:
This study explores the challenges, coping strategies, and recommendations of inclusive curriculum innovations of field studies in science education. A single case study design was employed wherein participants purposely selected include science students enrolled in Field Study 1 (FS1) and Field Study 2 (FS2) concurrently within the same semester. Data were collected through semi-structured interviews via google forms triangulated using focus group discussions. Thematic analysis (Braun & Clarke, 2006) revealed key challenges, including heavy workload, time management difficulties, coordination issues, and limited access to technology. Despite these challenges, students adopted inclusive innovative coping strategies such as peer collaboration, digital organizational tools, reflective journaling, stress management practices, and mentor support. Participants recommended restructuring FS1 and FS2 scheduling, enhancing field exposure, and improving access to technology. These findings provide valuable insights for academic leaders, highlighting the need for inclusive curriculum innovations through redesigning policy on concurrent field studies offering in science education, strengthen student support system, professional preparedness, and innovative teaching practices.

Keywords: Inclusive Curriculum Innovations, Science Education, Field Study, Case Study, Challenges, Coping.

Introduction

Quality teacher education is essential in preparing future educators, especially in science education where both content knowledge and practical teaching skills are important. Pre-service science teachers are expected not only to understand scientific concepts but also to learn how to teach these effectively in real classroom settings. One way this is achieved is through field study courses, which allow students to experience actual classroom environments and apply what they have learned in their academic subjects.

Field Study courses help connect theory to practice. Field Study 1 (FS1) usually focuses on classroom observation, while Field Study 2 (FS2) involves more active participation, such as assisting or handling parts of the teaching process. Through these experiences, students begin to develop important skills such as classroom management, lesson planning, communication, and reflection. These are necessary in preparing them for their future roles as teachers.

However, in some teacher education programs, FS1 and FS2 are taken at the same time within one semester. While this setup can provide more exposure and faster learning, it can also be demanding for students. Handling both courses simultaneously may result in heavy workload,

difficulty in managing time, and challenges in coordinating requirements. In some cases, limited access to resources and support can also add to the pressure. These situations may affect not only students' performance but also their overall well-being.

Although concurrent field studies can offer valuable learning experiences, there is still limited research on how science education students deal with this kind of setup. It is important to understand their actual experiences, including the challenges they face, how they cope with these challenges, and what improvements they think should be made in the curriculum and policies.

This study aims to explore the experiences of Science Education students who are enrolled in FS1 and FS2 at the same time. Specifically, it seeks to answer the following:

Research Questions:

1. What are the best experiences of science education students during concurrent FS1 and FS2?

2. What challenges do students encounter while managing concurrent FS1 and FS2?

3. What innovative coping strategies do students employ to navigate these challenges?

4. What recommendations do students propose for inclusive curriculum innovation in science education?

Theoretical Framework

This study is based on Experiential Learning Theory by Kolb (1984), which explains that people learn best through experience. According to this theory, learning happens through a cycle that includes doing, reflecting, understanding, and applying. In this study, science education students experience both observation in FS1 and actual teaching-related tasks in FS2. Since they are taking these at the same time, they can immediately apply what they observe and reflect on their experiences. This helps them better understand how teaching works in real classroom situations. The study is also guided by Constructivist Learning Theory by Vygotsky (1978), which focuses on the importance of social interaction in learning. During field study, students interact with cooperating teachers, mentors, and classmates. These interactions help them learn new strategies, receive feedback, and improve their teaching skills. The idea of scaffolding is also important, as more experienced individuals guide students until they become more confident and independent in their teaching.

Review of Related Literature

Field Study in Teacher Education

Field study plays an important role in teacher education as it allows students to connect what they learn in theory with actual classroom practice. Several studies have emphasized that field experiences help pre-service teachers develop essential pedagogical skills and gain a deeper understanding of the teaching profession. These experiences also contribute to the formation of professional identity, as students begin to see themselves as future educators while engaging in real classroom settings (Darling-Hammond, 2021; Wang et al., 2023).

Concurrent Field Studies

In some teacher education programs, field study courses are taken simultaneously. Research suggests that concurrent field placements can provide more intensive learning experiences and may help students develop their teaching skills more quickly. However, this setup also presents challenges. Students often experience increased workload, stress, and difficulty in managing multiple responsibilities at the same time (Jones, 2019). These findings highlight the need to better understand how students cope with such demands.

Innovative Coping Strategies

To manage the challenges of field study, students adopt different coping strategies. Previous studies have shown that peer collaboration is an effective way for students to share ideas, resources, and emotional support. In addition, the use of digital tools such as planners, shared documents, and online platforms helps students

stay organized and manage their tasks more efficiently. Reflective journaling has also been identified as a useful practice that allows students to process their experiences and improve their teaching approaches. Support from mentors and supervisors further helps students handle the demands of field study and build confidence in their skills (Lee, 2018; Tan & Lim, 2022; Roberts, 2020; Kaur & Singh, 2019).

Inclusive Curriculum Innovation and Policy

Several studies have pointed out the need to improve the design and implementation of field study programs. Suggested improvements include restructuring practicum courses, clarifying learning objectives, reducing unnecessary or repetitive tasks, and integrating technology to support teaching and learning. These changes can help make field experiences more meaningful and manageable for students (Miller, Green, & Roberts, 2021; Commission on Higher Education, 2017; Johnson et al., 2020; O'Connor & Holmes, 2018).

METHODOLOGY

Research Design

This study employed a single case study design, as described by Yin (2018), to allow an in-depth exploration of a specific group within its real-life context. The focus of the study is on science education students who are taking Field Study 1 (FS1) and Field Study 2 (FS2) at the same time. This design was chosen because it provides a detailed understanding of students' experiences, particularly in terms of the challenges they encounter, the coping strategies they use, and their recommendations for improving curriculum and policy.

Research Participants & Sampling

The participants of the study were selected using purposive sampling. These participants were science education students who were enrolled in both FS1 and FS2 during the same semester. They were chosen because of their direct experience with concurrent field studies and their ability to provide meaningful insights into the situation. To ensure the relevance of the data, the following inclusion criteria were applied: participants must be science education students currently enrolled in both FS1 and FS2, actively involved in observation and teaching-related activities, and willing to share their experiences. On the other hand, students who were not enrolled in both courses at the same time, had incomplete participation in field study activities, or were unwilling to take part in the study were excluded.

Research Instrument

The study utilized interview guide that underwent expert validation and pilot testing.

Data Collection

Data was collected through semi-structured interviews, which allowed the participants to freely express their experiences while still focusing on key topics. The interview questions were based on four main areas: best experiences, challenges, innovative coping strategies, and inclusive curriculum innovations and recommendations. Each interview lasted approximately 45 to 60 minutes and was conducted with the consent of the participants. All interviews were audio-recorded with signed informed consent and ensure to the adherence of data privacy in data gathering.

Data Analysis

The data were analyzed using thematic analysis following the approach of Braun and Clarke (2006). This method was used to identify patterns and themes within the participants' responses. The process involved several steps, including familiarization with the data, coding of relevant information, development of themes, reviewing and refining these themes, and finally organizing them into a clear report.

Ethical Considerations

Ethical standards were strictly observed throughout the study. Participants were informed about the purpose of the research and provided their consent before participating. To protect their identity, pseudonyms were used in reporting the data. Participants were also informed that they could withdraw from the study at any time

without any consequences. All collected data were kept confidential and securely stored.

Results and Discussion

Theme 1: Best Experiences

Students described their experiences in concurrent FS1 and FS2 as meaningful, particularly in terms of applying what they learned in real classroom settings. Many participants shared that having both observation and teaching experiences at the same time helped them better understand teaching practices.

Significant Statement 1: "Since we were observing and teaching at the same time, I was able to apply what I saw immediately. It helped me understand the lesson better." [R22]

Significant Statement 2: "The feedback from our supervisors really helped me improve. I became more confident in handling the class and planning my lessons." [R31]

Theme 2: Challenges

Despite the positive experiences, students also reported several challenges while managing FS1 and FS2 simultaneously. The most common issues were related to workload and stress. Workload overload and the simultaneous completion of FS1 and FS2 assignments were major sources of stress, affecting time management and task completion (Smith & Brown, 2020). 2. Emotional and physical strain, including fatigue and anxiety, was prevalent due to balancing field experiences with academic requirements (Jones, 2019).

Significant Statement 1: "It was really hard to manage all the requirements because both FS1 and FS2 had deadlines at the same time." [R27]

Significant Statement 2: "I felt physically and mentally tired most of the time because I had to balance schoolwork, fieldwork, and other responsibilities." [R13]

Theme 3: Innovative Coping Strategies

To deal with these challenges, students developed different coping strategies that helped them manage their responsibilities more effectively. 1. Students relied on peer collaboration for sharing resources and support, which helped mitigate stress and improve performance (Tan & Lim, 2022). 2. Use of digital tools such as calendars, shared drives, and reflective journals facilitated organization, planning, and self-monitoring (Lee, 2018).

Significant Statement 1: "We helped each other by sharing materials and ideas. It made the workload easier and less stressful." [R12]

Significant Statement 2: "I used digital tools like calendars and notes to organize my tasks and keep track of deadlines." [R19**]**

Theme 4: Recommendations for Inclusive Curriculum Innovations

Based on their experiences, challenges, and coping strategies, students provided several recommendations to improve the implementation of concurrent field studies. Inclusive curriculum innovations suggested included restructuring FS sequencing, integrating technology, and clarifying learning objectives to reduce redundancy and workload (Miller, Green, & Roberts, 2021). 2. Policy recommendations specified the development of supervision standards, workload guidelines, structured support systems for students, mentorship programs, and coordination protocols to ensure well-being and professional preparedness (CHED, 2017).

Significant Statement 1: "It would be better if FS1 and FS2 were not taken at the same time so students can focus more on each subject." [R8]

Significant Statement 2: "There should be clearer guidelines and better coordination between teachers and supervisors to avoid confusion." [R33]

Discussion

The findings of the study show that taking FS1 and FS2 at the same time has both advantages and challenges. On the positive side, students were able to gain more experience because they were observing and teaching at the same time. This helped them understand teaching better since they could apply what they learned

right away. However, students also experienced difficulties, especially in managing their time, handling multiple requirements, and dealing with stress and fatigue.

Even with these challenges, students were able to cope in different ways. Many of them relied on their classmates for support, used digital tools to stay organized, and asked guidance from their mentors. These experiences show that students learn not only from actual teaching but also from interacting with others and reflecting on what they do. This supports the idea that learning happens through both experience and social interaction.

The results also suggest some important improvements for science education. In terms of curriculum, it may be helpful to review how FS1 and FS2 are scheduled. Offering them in a way that is more manageable for students, along with clearer instructions and better use of technology, can help reduce unnecessary stress.

In terms of policy, better coordination between schools, supervisors, and students is needed. Clear guidelines, consistent supervision, and stronger support systems can help students perform better during their field study. Providing mentorship and managing workload properly can also improve their overall experience.

Conclusions

This study shows that taking FS1 and FS2 at the same time can be both helpful and challenging for Science Education students. On one hand, it allows students to gain more experience and improve their teaching skills, but on the other hand, it can also lead to difficulties such as heavy workload, time management problems, and stress. The findings also show that students try to manage these challenges by using different innovative coping strategies, such as working with classmates, using digital tools, and asking for help from mentors. These strategies, along with support from the school, help them continue with their field study despite the demands. Overall, the study suggests that there is a need to improve how concurrent field studies are implemented. With better planning, clearer guidelines, and stronger support systems, students can learn effectively without being too overwhelmed.

Recommendations

It would be helpful to review how FS1 and FS2 are scheduled. Taking both at the same time can be overwhelming, so arranging them in a way that reduces overlapping requirements may help students manage their workload better. It is also recommended to include the use of digital tools and interactive materials to support both observation and teaching activities. In addition, having clearer learning objectives and assessment criteria for each course can help students better understand what is expected of them.

In terms of policy, there is a need for clearer guidelines when it comes to supervision. Mentors should also be given proper support or training so they can guide students more effectively. Schools may also consider strengthening support systems, such as counseling services and peer support, to help students deal with stress. Setting reasonable workload guidelines can also help prevent students from becoming too overwhelmed. Better coordination among schools, supervisors, and students is also important to make sure that field study activities run more smoothly.

For future research, it is recommended to investigate the long-term effects of taking FS1 and FS2 at the same time. It may also be useful to compare programs that offer these courses separately and those that offer them concurrently to see which approach works better for students.

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