Fighting climate change by doing a practitioner inquiry

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Abstract. This presentation delves into a practitioner inquiry aimed at enhancing the quality of the 6 CliPs climate change course conducted in April 2023. The inquiry explores the strengths and weaknesses of the course and proposes reshaping it for future iterations while preserving its core objectives. Grounded in a theoretical framework encompassing Inquiry Based Learning (IBL), Practitioner Inquiry (PI), and the STE(A)M cycle, the inquiry utilized various data gathering methods, including surveys, interviews, and reflections. Analysis of the data revealed insights into the course's effectiveness and areas for improvement, providing valuable recommendations for optimizing the learning experience.

Introduction

The "Six STE(A)M projects for fight against climate change" (6CliPs) project [1], focusing on six climate projects to combat climate change, serves as the foundation for this practitioner inquiry. The inquiry aims to assess the efficacy of the 6 CliPs training course for teachers and identify opportunities for enhancement. Key objectives of the course include fostering a professional learning community (PLC) among participating STEM teachers, integrating IBL and promoting environmental awareness. The course development followed the STE(A)M [2] approach, emphasizing hands-on learning and collaboration, with adaptations tailored to meet the participants' needs.

Theoretical Framework

The theoretical framework underpinning this inquiry draws upon concepts such as Inquiry Based Learning (IBL), Practitioner Inquiry (PI) [3], [4], and the STE(A)M cycle which was based on previous European Erasmus+ projects 3DIPhE [5] and STAMPED [6]. These frameworks provide a structured approach to curriculum design and delivery, emphasizing active learning, inquiry, and interdisciplinary connections. The primary goals of the course include establishing a collaborative learning environment, facilitating hands-on experiences, understanding local environmental issues, and developing strategies for integrating course learnings into participants' teaching practices. Original aspects of the inquiry include the incorporation of real-life experiences, collaborative learning strategies, and continuous feedback mechanisms to drive improvement. These strategies are derived from, among others, Hattie [7].

Methods and Findings

Data collection during the course involved a multifaceted approach, including the maintenance of personal and digital logbooks, SWOT feedback sessions, graphical expressions of learning, surveys, and oral feedback. Analysis of the 6 datasets uncovered several strengths of the course, including its emphasis on experiential learning, collaborative problem-solving, and engagement with local contexts. Weaknesses identified included limited reflection time, inefficiencies in feedback mechanisms, and challenges in the implementation of certain course activities. Participants unanimously praised the insights provided by external experts, the immersive cultural experiences, and the utility of personal notebooks for capturing learning moments.

Conclusions

The inquiry culminated in valuable recommendations for reshaping the 6 CliPs climate change course for future iterations. Suggestions include refining the STEAM cycle, integrating more hands-on experiments earlier in the curriculum, and streamlining feedback mechanisms to enhance reflection and learning. The findings underscore the importance of active engagement, collaborative learning, and contextual relevance in optimizing the learning experience. By leveraging these insights, future iterations of the course can effectively promote STEM education and environmental awareness among participants. As an example of this process, already in February 2024 the course was adapted to 16-18 years old students, following the same process, and experiencing the STE(A)M cycle.

References

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