

Developing a questionnaire for measuring future teacher anxiety: with insights from initial observations and interviews

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1 Introduction

Research on teacher emotion is an increasing area of interest due to its significant impact on the classroom environment. The importance of teacher emotion extends beyond teacher occupational mental wellbeing [1], to also the students' wellbeing [2] and learning outcomes [3]. High levels of teacher stress and the increasing prevalence of teacher burnout contribute to educators leaving the profession [4]. Regarding the use of technology for supporting and measuring emotions, research tends to focus more on the students, exploring wearable devices for the measure and predictions of student engagement [5] and behaviours [6]. However, the use of these innovative devices and interventions within samples of teachers is lacking, despite the importance of regulated teachers for positive student-teacher interactions and environments which foster co-regulation [7, 8]. These tools also have the potential to enhance faculty training by providing objective measures of teacher stress and anxiety, which can lead to more targeted support strategies, facilitating professional development.

Electrodermal activity (EDA), also referred to as galvanic skin response (GSR), detects changes in skin conductance that depict the activity of the sympathetic branch of the autonomic nervous system [9]. It is a validated measure of physiological and emotional arousal [10, 11]. Advances in technology are allowing for EDA data to be collected through non-invasive wearable devices [12]. Researchers are advancing the use of EDA into more mainstream applications, thus rendering it feasible for classroom and educational settings. Results from studies measuring emotion have suggested that a triangulation method, which combines objective physiological data (such as EDA) with subjective measures (such as self-reports and interviews) [13], provides a more robust approach to measuring emotions. The present study acts as a foundational step to the wider project aims which involve comparing self-reported and observed data with objective EDA measurements, employing a triangulation method [14]. This approach, which integrates multiple data sources, is suggested as the most effective for measuring teacher emotions, as it combines the strengths of both data types: the objectivity and precision of physiological measurements and the personal insights offered by subjective

reports. This allows for more accurate results, especially in situations where emotions may not always be visible, such as during teacher observations or self-reports.

2 Pilot study: a foundational step for the triangulation of questionnaire and EDA data

The present study, which is part of the Samothrace Spoke 3 'S2- COMMs - Micro and Nanotechnologies for Smart & Sustainable Communities Project', serves as a pilot study aimed at developing a questionnaire designed to measure future teacher emotions, with a focus on anxiety. The questionnaire will be tailored to address the unique challenges of classroom contexts by building on concepts from existing tools for measuring teacher anxiety, as well as our own observations of and interviews with 62 future teachers during a stimulated lesson activity. Identified indicators such as body language, fidgeting, and other physical manifestations of anxiety observed will be translated into questionnaire items to assess underlying emotions and cognitive experiences accurately. Methodological limitations include self-report and observer bias in interviews and observations. To address these issues, the wider project aims to triangulate the questionnaire data with EDA data in future studies to enhance the validity and reliability of the tool. This multi-source approach, which will be tested in future validation studies, aims to provide a more comprehensive measure of teacher emotions, contributing to a broader understanding of their emotional experiences with increased accuracy across diverse educational contexts. The findings and the developed questionnaire will inform practical interventions in educational settings, guiding targeted support interventions for future teachers, and helping them identify and manage anxiety during their training and subsequent teaching careers. This research is pivotal for Faculty Development in Higher Education, as it provides institutions with tools to better prepare educators for the emotional challenges of teaching, ultimately enhancing their effectiveness and well-being in the academic environment.

3 Conclusion

Considering the evidence for the impact of teacher emotion, it is crucial to understand this area further using more objective measures. Understanding these emotions can ensure classrooms are inclusive, safe spaces with emotionally regulated teachers, as well as offer valuable insights into the challenges and stressors faced by teachers, thereby informing strategies to enhance their well-being and professional performance. The development of this questionnaire establishes the basis for employing the triangulation method, which will enhance the validity and reliability of the findings, offering deeper insights into the challenges and stressors faced by teachers.

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