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Special Track 6

Rethink Education: The Opportunities and Challenges of Artificial Intelligence

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Public Speaking Skills and Anxiety Awareness in Future Teachers. Using AI and IoT in Higher Education for research and training

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1 Introduction

Public Speaking (PS) is the ability to speak effectively in front of an audience [1]. PS falls under the broader umbrella of oracy [2], which is the essential set of all skills related to oral communication, including coherent speech, active listening, and effective participation in discussions. It is a fundamental skill for university students in general and, even more specifically, for future teachers who are required to master the PS skill in order not to compromise the effectiveness of the teaching-learning process [3]. One of the main challenges people face when approaching PS is the issue of anxiety. Public Speaking Anxiety (PSA) is defined as “a situation-specific social anxiety that arises from the real or anticipated enactment of an oral presentation” [4, p. 72] and represents a common experience for the majority of the population with percentages of those affected exceeding half of the total [5; 6]. Future teachers, indeed, frequently mention anxiety as a concern about the teaching experience [7]. Given the importance of developing oracy in future teachers and the incidence of PSA in the general population, it was grasped as relevant to investigate how PSA affects future teachers and the extent to which they are aware of it.

From this hypothesis, two research questions were formulated:

1. Are future teachers aware of their anxiety concerning PS?
2. Can an AI emotion recognition model and an IoT stress detection device identify highly emotional students and support teachers in developing personalized and inclusive university teaching?

The proliferation of AI solutions has led several researchers to develop new models in education aimed at helping students improve their knowledge and skills and helping teachers develop strategies to improve the quality of teaching. AI solutions have not only been adopted to assist learners during the learning journey but can also be used to detect the emotions felt by students during learning activities [8], facilitating the instructor's identification of potential gaps in students that can negatively impact performance. Another aspect that can influence student performance is the level of stress perceived by students, which can affect memory and prevent them from

achieving their learning outcomes [9]. Several researchers have identified the increase in heart rate (HR) during classroom activities as a sign of stress [10]. The collection of this data through IoT devices could be particularly beneficial to teachers during the feedback process [11]. This paper analyzes how aware students are of the emotional states they feel during PS to support university teachers in designing specific PS training to make their teaching more inclusive.

2 Methods

The research was conducted with students attending the “Foundations of Teaching and Learning” first-year course of the Master’s Degree in Primary Education at the University of Macerata. Students were required to answer questions from the PSA Survey [12] before giving a group oral presentation during the final workshop of the course. The presentation of 25 students, selected on a voluntary basis, was monitored by a video recording lasting up to 5 minutes. During the presentation, students were required to wear a portable stress tracker device in order to extract the HR data needed to predict students’ stress perception. A Polar OH1+, an optical heart rate monitor connected to the online application ‘Polar Flow’ was used as it allows the accurate collection of 60 HR records per minute and the download of a csv file [13].

The subsequent study analyzed the students’ public speech video presentation to extract the main emotions felt during the activity. An AI emotion detection model based on Convolutional Neural Networks (CNNs), previously developed and tested during a group presentation activity, was adopted for this scope [14]. This model consists of a combination of deep learning and convolutional neural network, which is able to extract emotions from facial expressions thanks to the use of the OpenCV Python library. The model thus returns 5 main emotions and a list of body movements made by the students during the presentation.

Thanks to these data, it was possible to check potential changes in the emotional states of the students by monitoring the increase in HR during the video or the HR variability, which can be influenced by the stress condition [15]. After the collection, the data from the survey, videos, and Polar sensors were cross-referenced for analysis.

3 Conclusion

The analysis of the 257 answers gathered from the PSA survey shows that most students report high levels of PSA. To address the first research question, we cross-referenced the survey data from the 25 selected students with data from emotion detection conducted through AI tools. The level that emerged from the survey was not consistently reflected in the emotional state detected by AI, showing how students were not always able to correctly self-assess their anxiety under or overestimating it.

This preliminary analysis shows that AI-based emotion recognition tools can help teachers identify students with high levels of PSA and support students to become more aware of their emotional state. Moreover, this kind of data can help university teachers design specific training on PS and improve personalized and inclusive learning paths.

References

1. Aqeel, Z. A., & Chung, K. C.: Strategies to Improve Public Speaking Skills. *Plastic and Reconstructive Surgery* 153(2), 273-276 (2024).
2. Mercer, N., Warwick, P., & Ahmed, A.: An oracy assessment toolkit: Linking research and development in the assessment of students' spoken language skills at age 11–12. *Learning and Instruction* 48, 51–60 (2017).
3. Kenoh, A.R.I.: A qualitative study on speaking anxiety among pre-service teachers. *Journal of Learning and Development Studies* 1(1), 34-39 (2021).
4. Bodie, G. D.: A racing heart, rattling knees, and ruminative thoughts: Defining, explaining, and treating public speaking anxiety. *Communication Education* 59(1), 70–105 (2010).
5. Burnley, M.C.E., Cross, P.A., & Spanos, N.P.: The effects of stress inoculation training and skills training on the treatment of speech anxiety. *Imagination, Cognition and Personality*, 12(4), 355-366 (1993).
6. Ferreira, A.C., Mesquita, A., Côrtes, A.C., & Caldas, L.: Fear of public speaking: Perception of college students and correlates. *Journal of Voice*, 31(1), 7-11 (2017).
7. Pentucci, M., Rossi, P. G., & Capolla, L.: Designing regulation in action to manage the unforeseen in teaching-learning contexts. In *EDULEARN23 Proceedings, IATED*, pp.1151-1158 (2023).
8. Ye, F.: Emotion recognition of online education learners by convolutional neural networks. *Computational Intelligence and Neuroscience*, 2022(1), 4316812 (2022).
9. Mizoguchi, K., Yuzurihara, M., Ishige, A., Sasaki, H., Chui, D. H., & Tabira, T.: Chronic stress induces impairment of spatial working memory because of prefrontal dopaminergic dysfunction. *Journal of Neuroscience* 20(4), 1568-1574 (2000).
10. Elwess, N. L., & Vogt, F. D.: Heart Rate and Stress in a College Setting. *Bioscene: Journal of College Biology Teaching* 31(4), 20-23 (2005).
11. Nalli, G., Dafoulas, G., Tsiakara, A., Langari, B., Mistry, K., & Aria, F. T.: Hybrid Educational Environments–Using IoT to detect emotion changes during student interactions. *Interaction Design & Architecture (s)–IXD&A Journal* (58), 39-52 (2023)..
12. Bartholomay, E. M., & Houlihan, D. D.: Public Speaking Anxiety Scale: Preliminary psychometric data and scale validation. *Personality and individual differences*, 94, 211-215 (2016).
13. Mandal, S., Ghosh, B., & Naskar, R.: A Photoplethysmography (PPG) Sensor based Stress Level Monitoring System for Undergraduate Students of Technical Education. In *2023 IEEE 20th India Council International Conference (INDICON)*, IEEE, pp.197-202 (2023)..
14. Fekry, A., Dafoulas, G., & Ismail, M.: Automatic detection for students behaviors in a group presentation. In *2019 14th International Conference on Computer Engineering and Systems (ICCES)*, IEEE, pp.11-15 (2019).
15. Schubert, C., Lambertz, M., Nelesen, R. A., Bardwell, W., Choi, J. B., & Dimsdale, J. E.: Effects of stress on heart rate complexity - a comparison between short-term and chronic stress. *Biological psychology*, 80(3), 325-332 (2009).



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