







Evaluation of the stress lab

a video-based tool for prospective physical education teachers

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1 Introduction

Prospective physical education (PE) teachers often experience stress.¹ Regarding sources of stress, results of a previous study showed that PE students perceived the occurrence of pupils' discipline and motivational problems and inadequate facilities and equipment more frequently than PE teachers.² To prepare PE students to deal with these and other stressful teaching situations, the stress lab was developed based on the transactional stress theory³ and the taxonomy of gaining competences.⁴

The aim of the present study was to find out whether PE students felt better prepared for handling stressful teaching situations after participating in the stress lab.

2 Methods

71 PE students (age: M = 21.80 years, SD = 2.60; female: 28, male: 43) were allocated to one of two groups: One group took part in the whole stress lab (e-learning & practical unit, ELPU) and the other group took part exclusively in the practical unit (PU, see Fig. 1). Participants were asked before (t0) and after (t1) participation how well prepared they felt for different stressful teaching situations (see Fig. 2) using an adaptation of a German questionnaire (ABIS⁵) assessing different stressful PE situations (eight items). Data were analyzed using 2x2 ANOVAs (time x group).

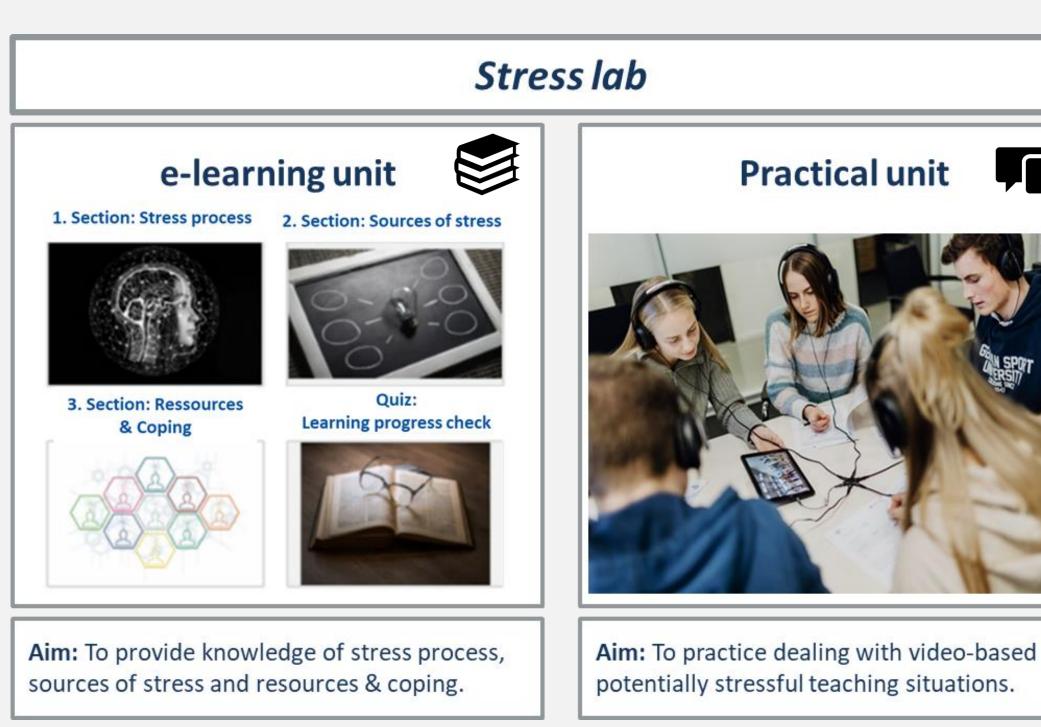


Fig. 1: Structure of the stress lab

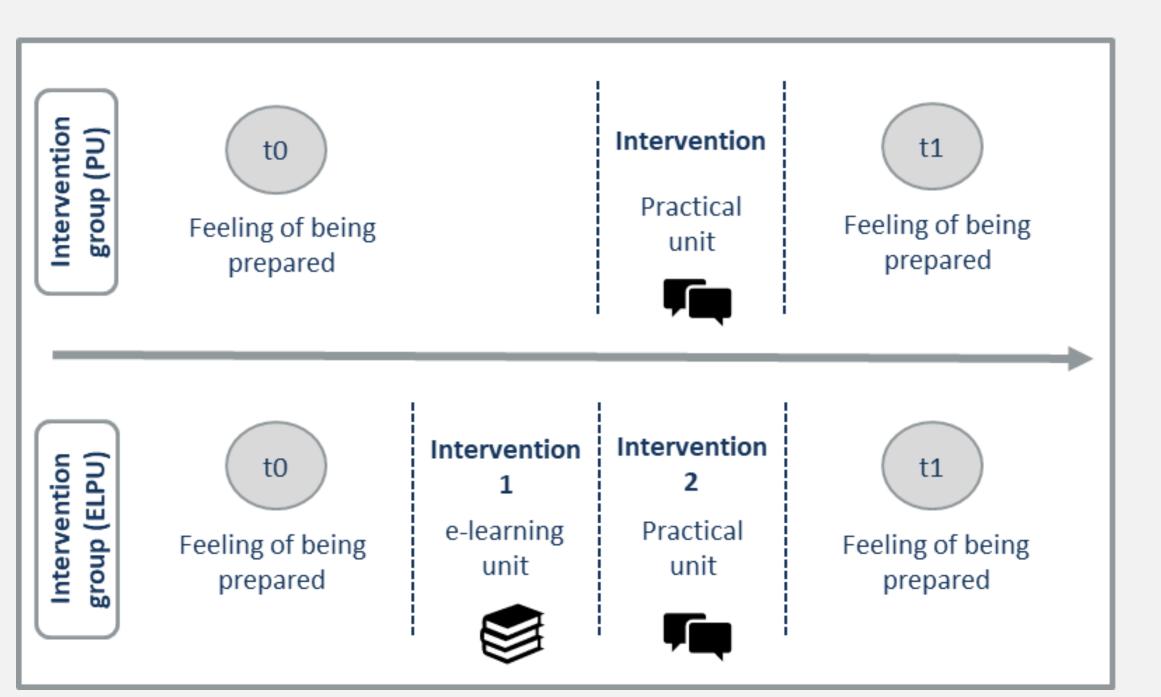


Fig. 2: Design of the study. PU = practical unit, ELPU = e-learning & practical unit

3 Results

Results showed a significant change over time for both groups of feeling prepared for:

- pupils' discipline problems $(F(1, 69) = 5.84, p = .018, \eta^2 = .08, PU: t0 < t1 (p = .030))$
- physical strain $(F(1, 69) = 5.87, p = .018, \eta^2 = .08, ELPU: t0 < t1 (p = .026))$
- pupils' heterogeneity $(F(1, 69) = 12.49, p < .001, \eta^2 = .15, ELPU: t0 < t1 (p = .019), PU: t0 < t1 (p = .021))$

Results showed a group-dependent change over time of feeling prepared for: (from 1 = not prepared at all to 5 = very well prepared)

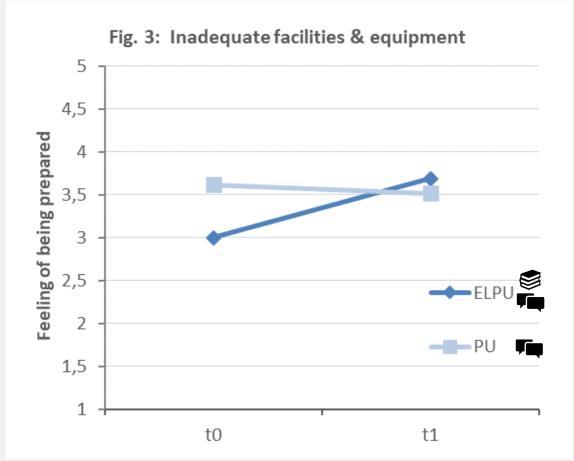


Fig. 3: Inadequate facilities & equipment

A significant effect of time (F(1, 69) = 6.75,p = .011, $\eta^2 = .09$) and a significant interaction effect of time and group (F(1, 69) = 10.24,p = .002, $\eta^2 = .13$) was found. The ELPU group showed higher values at t1 than at t0 (p = .004). At t0, the PU showed higher values compared to the ELPU group (p = .009).

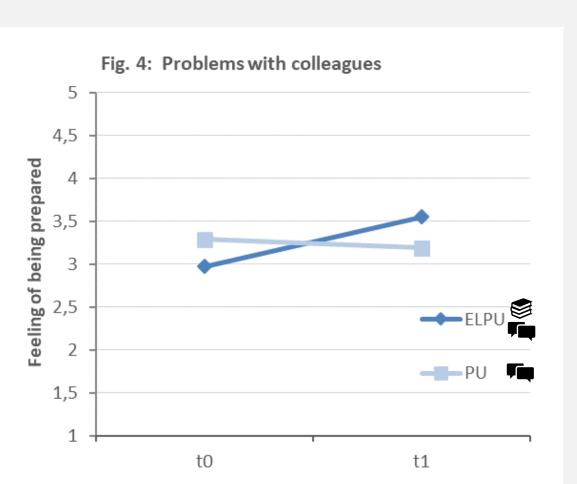


Fig. 4: Problems with colleagues

A significant interaction effect of time and group $(F(1, 69) = 6.82, p = .011, \eta^2 = .09)$ was found. The ELPU group showed higher values at t1 than at t0 (p = .017).

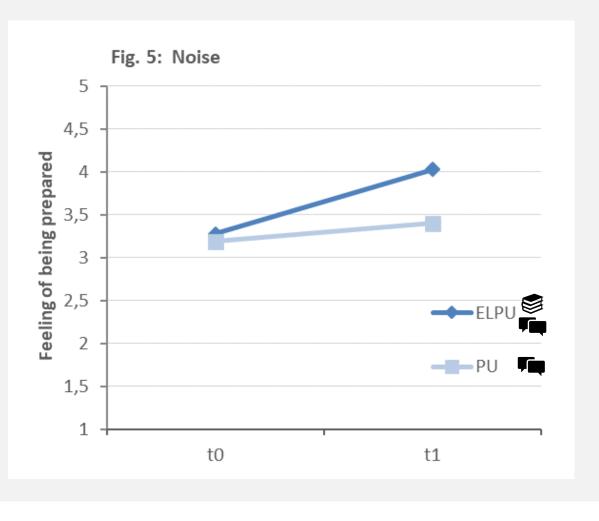


Fig. 5: Noise A significant effect of time (F(1, 69) = 19.87,p < .001, $\eta^2 = .22$) and a significant interaction effect of time and group (F(1, 69) = 6.22,p = .015, $\eta^2 = .08$) was found. The ELPU group showed higher values at t1 than at t0 (p < .001) and higher values compared to the

PU group at t1 (p = .005).

4 Discussion

Results showed that PE students felt better prepared for a variety of stressful teaching situations after participating in the stress lab. This suggests that practicing coping strategies enhances efficacy beliefs in PE students for handling stressful teaching situations. Moreover, the interaction effects showed that the benefit was particularly for the ELPU group. The reason could be that the ELPU group received information on stressful teaching situations and coping strategies by additionally participating in the e-learning unit and was subsequently able to apply these in the practical unit.

A limitation of the study is the self-report of the participants, which could be biased (e.g. by social desirability). The stress lab will be integrated into the first phase of PE teacher education trainings to prepare PE students for internships.

¹ Schäfer, A., Pels, F., von Haaren-Mack, B. & Kleinert, J. (2019). Perceived stress and coping in physical education teachers in different career stages. German Journal of Exercise and Sport Research, 49(4), 435–445. ² Pels, F., Hartmann, U., Schäfer-Pels, A. & von Haaren-Mack, B. (2022). Potential stressors in (prospective) physical education teachers: a comparison of different career stages. German Journal of Exercise and Sport Research. https://doi.org/10.1007/s12662-022-00804-3 ³ Lazarus, R. S., & Folkman, S. (1984). Stress, appraisal, and coping. Springer. ⁴ Bloom, B. S., Engelhart, M. D., Furst, E. J., Hill, W. H. & Krathwohl, D. R. (1956). Taxonomy of educational objectives: The classification of educational goals: Handbook I: Cognitive domain. David McKay Company.

⁵ Heim, R., & Klimek, G. (1999). Arbeitsbelastungen im Sportlehrerberuf: Entwicklung eines Instruments zur Erfassung fachunterrichtlicher Stressoren. [Workplace demands in the PE teaching profession: Development of an instrument to assess subject-specific stressors]. Psychologie und Sport, 6(2), 35–45.