Through the eyes of the teacher

# 1 Introduction

* wie wird Störung definiert

Managing classroom disruptions is a crucial aspect of effective classroom management (Evertson, Weinstein, et al. (2006); Kounin (2006)).

Accordingly, teachers must be able to quickly notice and appropriately react to significant events in the classroom. This ability is referred to as classroom professional vision (Goodwin (2015); Sherin (2007)).

The process of professional vision can be divided into two main aspects: focusing on relevant situations for learning and teaching (“noticing”) and applying knowledge to draw appropriate conclusions in these situations (“knowledge-based reasoning”; Seidel and Stürmer (2014)).

Therefore, the early visual perception of classroom disruptions is a key component to effectively maximize students’ learning time and minimize classroom interruptions. According to Kounin (2006), these important classroom management strategies are called “withitness” and “overlapping” and can be summarized under the concept of monitoring (Gold and Holodynski (2017)).

Learning to develop such classroom management skills is a demanding and complex task for student teachers (Wolff et al. (2016)). Research on teacher expertise showed that expert and novice teachers differ in their ability to perceive classroom events, “[…] whereas only a few studies have focused on the basal process of noticing, i.e. the recognition of possible disturbing situations” (Grub, Biermann, and Brünken (2020), p.75). Mobile eye-tracking data can fill this research gap by providing new insights in how expertise differences in teacher´s professional vision manifest in teacher-student interactions (Lachner, Jarodzka, and Nückles (2016); @Wolff et al. (2016)).

# 2 Research Questions

This study examined how the degree of teaching experience influences (a) the number of fixations on relevant areas (e.g., the student performing the disruption), (b) the fixation duration in relevant areas and (c) the time to first fixation on relevant areas, using mobile eye-tracking data in a controlled, micro-teaching setting. Based on the existing literature, we expect expert teachers to outperform novices by (H1) showing more fixations on relevant areas with (H2) shorter fixation durations and (H3) perceiving classroom disruptions faster (cf. Van den Bogert et al. (2014)).

# 3 Methods

We report how we determined our sample size, all data exclusions (if any), all manipulations, and all measures in the study.

## 3.1 Participants

The sample consists of *N* = 28 participants with *n* = 7 expert teachers and *n* = 21 novice teachers.

The inclusion criterion for experts was that they have successfully completed teacher training and are actively employed in the teaching profession. Furthermore, expert teachers had at least three years of teaching experience (Palmer et al. 2005). Novices were student teachers who have already successfully completed their first internship in a school and have gained one to four hours of teaching experience.

The subjects were primarily recruited through personal contacts, social media (facebook), e-mail distribution lists and advertising in lectures at the University Leipzig.

The expert teachers (5 women; 71.4%) had a mean age of 45.1 years (*SD* = 12; range: 27-59) and an average teaching experience of 18.1 years (*SD* = 14.1; range: 3-37).

The novice teachers (13 women; 61.9%) had a mean age of 23.3 years (*SD* = 1.7; range: 20-27) with an average teaching experience of 0 years. On average, the student teachers were in their 7.4 semester (*SD* = 2.5; range: 3-11). Furthermore, they had an average teaching experience of 12.2 teaching units à 45min (*SD* = 8.4; range: 4-36) through the internships during their studies. 90.5% of the student teachers were also engaged in an extracurricular teaching activity, such as tutoring or homework supervision.

## 3.2 Material

## 3.3 Procedure

In June 2021, the study was piloted with student teachers volunteers to refine the study procedure. Data collection was conducted between July 2021, and July 2022.

## 3.4 Data analysis

All reported data analyses were conducted with the R (Version 4.1.2; R Core Team 2021) and the R-packages *ARTofR* (Version 0.3.3; Zhang 2021), *cowplot* (Version 1.1.1; Wilke 2020), *dplyr* (Version 1.0.8; Wickham et al. 2022), *forcats* (Version 0.5.1; Wickham 2021), *ggplot2* (Version 3.3.5; Wickham 2016), *gridExtra* (Version 2.3; Auguie 2017), *lubridate* (Version 1.8.0; Grolemund and Wickham 2011), *needs* (Version 0.0.3; Katz 2016), *papaja* (Version 0.1.0.9997; Aust and Barth 2020), *purrr* (Version 0.3.4; Henry and Wickham 2020), *readr* (Version 2.1.1; Wickham, Hester, and Bryan 2021), *readxl* (Version 1.3.1; Wickham and Bryan 2019), *stringr* (Version 1.4.0; Wickham 2019), *tibble* (Version 3.1.6; Müller and Wickham 2021), *tidyr* (Version 1.2.0; Wickham and Girlich 2022), *tidyverse* (Version 1.3.1; Wickham et al. 2019), *tinylabels* (Version 0.2.3; Barth 2022), *viridis* (Version 0.6.2; Garnier et al. 2021a, 2021b), and *viridisLite* (Version 0.4.0; Garnier et al. 2021b) and IBM SPSS 28. Data analysis scripts can be obtained from the authors upon request.

# 4 Results

# 5 Discussion

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