

A Walk In The Classroom - Using Fitbit Charge 4 to measure expert and novice teachers'  
heart rate and step counts in a laboratory study

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Writing - Original Draft Preparation, Writing - Review & Editing; Peer Keßler: Writing -  
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## Abstract

One or two sentences providing a **basic introduction** to the field, comprehensible to a scientist in any discipline.

Two to three sentences of **more detailed background**, comprehensible to scientists in related disciplines.

One sentence clearly stating the **general problem** being addressed by this particular study.

One sentence summarizing the main result (with the words “**here we show**” or their equivalent).

Two or three sentences explaining what the **main result** reveals in direct comparison to what was thought to be the case previously, or how the main result adds to previous knowledge.

One or two sentences to put the results into a more **general context**.

Two or three sentences to provide a **broader perspective**, readily comprehensible to a scientist in any discipline.

*Keywords:* heart rate; photoplethysmography; wearable electronic device; expertise differences

Word count: X

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## Methods

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

### Participants

The sample consisted of  $N = 41$  participants with  $n = 16$  expert teachers and  $n = 25$  novice teachers.

The inclusion criterion for experts was that they have successfully completed teacher training and are actively employed in the teaching profession. According to Palmer, Stough, Burdenski, and Gonzales (2005), we selected teachers as experts who had at least three years of professional experience and ideally had worked in another teaching position, such as subject advisor or trainer for trainee teachers, in addition to their teaching profession in school. Novices were student teachers who had successfully completed their first internship in a school and gained one to four hours of teaching experience.

The expert teachers (9 women; 56.25%) had a mean age of 41.40 years ( $SD = 10.70$ ; range: 27-59) and an average teaching experience of 13.60 years ( $SD = 12.80$ ; range: 2-37). 18.75% of the experts were primary school teachers and 81.25% were secondary school teachers. 56% of the experienced teachers were also engaged in an secondary teaching activity, such as lecturers at the university, main training supervisors for trainee teachers and subject advisers.

The novice teachers (16 women; 64%) had a mean age of 23.40 years ( $SD = 1.80$ ; range: 20-27) with an average teaching experience of 0 years. On average, the student teachers were in their 7.30 semester ( $SD = 2.60$ ; range: 3-11). Furthermore, they had an

average teaching experience of 11.20 teaching units à 45min ( $SD = 8.10$ ; range: 0-36) through the internships during their studies. 20% of the novices were studying to become primary school teachers, 68% to become secondary school teachers and 12% to become special education teachers. 88% of the student teachers were also engaged in an extracurricular teaching activity, such as tutoring or homework supervision.

The subjects were primarily recruited through personal contacts, social media (Facebook), e-mail distribution lists and advertising in lectures at Leipzig University. All study procedures were carried out in accordance with the ethical standards of the University's Institutional Review Board. The authors received a positive vote on the study procedures from the Ethics Committee Board of Leipzig University. All participants were informed in detail about the aim and intention of the study prior to testing. Participation in the study was voluntary and only took place after written consent has been given.

## Material

## Procedure

## Data analysis

We used R (Version 4.1.3; R Core Team, 2022) and the R-packages *papaja* (Version 0.1.0.9999; Aust & Barth, 2020), and *tinylab* (Version 0.2.3; Barth, 2022) for all our analyses.

## Results

## Discussion

## References

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