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Boredom begets boredom: An experience sampling study on the impact of teacher boredom on student boredom and motivation

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Background. Boredom is a common complaint among students. Boredom was previously found to be negatively associated with academic outcomes, such as academic motivation, strategies, and achievement. It is of interest to understand students' in-class boredom, especially factors that might exacerbate it.

Aims. The current study examines the influence of teacher's boredom on students' in-class boredom and learning experience. It aims to understand the relationship between teacher boredom, students' perceived teacher boredom, student boredom, and student learning motivation.

Sample. A total of 437 students (54.8% female, M_{Age} = 14.5 years, SD = 1.6) and 17 of their teachers (29.4% female, 76.5% 40 years old or below) participated in the study.

Methods. We conducted an experience sampling study, in which participants completed a 2-week diary. Data were analysed using multilevel modelling.

Results and Conclusions. Results from multilevel modelling of 2,675 post-class evaluations indicated that teacher boredom was negatively associated with students' motivation. However, the relationship between teacher boredom and students' perceived teacher boredom was not significant, suggesting that students did not accurately perceive whether their teacher was bored. Results from indirect effect analysis further revealed that students' perception of teacher boredom predicted student learning motivation through student boredom. In other words, perceiving teachers being bored promoted students' own feeling of boredom, which in turn reduced their learning motivation. Together, these results indicate that when a teacher is bored in class, or when students perceive that their teacher is bored, students would have lower learning motivation.

Opening the door to a classroom in the middle of a lesson, while the teacher is busy explaining one concept after another, you might find a scene of students looking bored, resting their heads on the desk, dozing off, doodling on their notebooks, or secretly playing with their phones. Boredom is an emotion commonly reported by students (e.g.,

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Big pic

unknowns

This study

Goetz *et al*., 2014; Mann & Robinson, 2009). Boredom impedes students' learning motivation and academic performance (e.g., Pekrun, Goetz, Daniels, Stupnisky, & Perry, 2010; Tze, Daniels, & Klassen, 2016). Whereas much attention has been given to students' experience of boredom in educational settings, little is known about teachers' boredom, especially how it might affect students' boredom and learning experience. Through experience sampling method, the current study investigated the interplay of teachers' boredom, students' perceived teacher boredom, students' boredom, and students' learning motivation.

Boredom in academic setting

Definitions

Clarification

State boredom is defined as an aversive state of wanting to, but being unable to, engage in a satisfying activity (Eastwood, Frischen, Fenske, & Smilek, 2012). In a review by Vogel-Walcutt, Fiorella, Carper, and Schatz (2012) on academic boredom, this emotion is characterized by its unpleasantness and low arousal. It occurs when people experience an objective state of low arousal, accompanied by a subjective experience of dissatisfaction, frustration, and disinterest. It is a distinct emotion (Van Tilburg & Igou, 2012, 2017) that fits the contemporary definition of emotions by possessing affective, cognitive, physiological, expressive, and motivational components (see Nett, Goetz, & Daniels, 2010).

Why it matters

The experience of boredom appears to be ubiquitous in educational settings. Daschmann, Goetz, and Stupnisky (2011) reported that around 44% of middle school students partly to strongly agreed that they frequently felt bored in mathematics class. A study also demonstrated that boredom can be more prevalent than anxiety among students (Goetz, Frenzel, Pekrun, & Hall, 2006). In the university setting, one study reported that more than half of the students found at least half of their lectures boring, and almost a third found most or all of their lectures boring (Mann & Robinson, 2009). The prevalence of boredom among students was further revealed by experience sampling data in samples of high school and university students (Goetz *et al*., 2014; Larson & Richards, 1991). In addition to in-class experience of boredom (e.g., Daschmann, Goetz, & Stupnisky, 2014; Mann & Robinson, 2009), students can also feel bored when they are studying outside the classroom (e.g., Webster & Hadwin, 2015).

Student boredom, motivation, and academic performance

What is known/Theory

Given the prevalence of boredom in academic settings, researchers are interested in its effects on students' academic achievement. One of the markers of state boredom is a strong desire to change the current activity or escape from it (Martin, Sadlo, & Stew, 2006; Smith & Ellsworth, 1985; Van Tilburg & Igou, 2012). This motivational component of boredom may make it particularly detrimental in academic setting as learning, no matter inside or outside classroom, requires one's persisting attention and motivation. The control-value theory (Pekrun, 2006) posits that certain emotions can influence students' cognitive resources, learning motivation, the use of learning strategies, and thereby academic performance. Pekrun proposed a reciprocal relationship between achievement emotions and academic outcomes. According to this theory, boredom is a deactivating emotion which has deleterious effects on students' intrinsic and extrinsic motivation to learn, and academic achievement. It postulates that boredom drives students to avoid or even leave the academic setting. Boredom can thus reduce learning motivation, which in turn may impede students' academic achievement.

What is known -- empirical results

This theoretical framework is well supported by a series of empirical studies. Results from two longitudinal studies, with primary school (Putwain, Becker, Symes, & Pekrun, 2018) and college samples (Pekrun, Hall, Goetz, & Perry, 2014), converge to suggest a reciprocal negative effect between boredom and academic achievement. Using multiple waves of data from an entire school year, these studies demonstrated that higher level of academic boredom predicted poorer subsequent performance, and poor academic performance predicted subsequent boredom level.

Empirical evidence demonstrates that boredom erodes students' motivation and thereby harms students' academic achievement. Pekrun, Goetz, and Titz (2002) conducted a series of cross-sectional, longitudinal, and diary-based studies in secondary schools and universities, where they found a negative association between boredom and various motivation variables, including interest, intrinsic motivation, extrinsic motivation, academic effort as well as overall motivation to learn. This is corroborated by later studies. Pekrun *et al.* (2010) found a negative relationship between boredom, intrinsic motivation to learn, and academic performance scores. Likewise, in-class boredom was associated with lower lecture attendance and lower average grade points (Mann & Robinson, 2009). In Fritea and Fritea (2013), motivational regulation strategies had a moderating effect on the negative association between boredom and academic performance. More recently, in Tze *et al.*'s meta-analysis (2016), academic boredom has been shown to have a small-to-medium aversive effect on academic achievement as well as a moderate negative effect on academic motivation. Together, these demonstrate a robust relationship between students' boredom, learning motivation, and academic performance.

Why it matters/transition

Teacher boredom as an antecedent of student boredom

Considering the detrimental effects of academic boredom, it is essential to understand its antecedents. The control-value theory suggests that two groups of appraisals, control and value appraisals, are antecedents of a student's emotions. These appraisals are made based on the learning environment, which includes teachers' behaviours (Pekrun, 2006). Daschmann *et al.* (2011) proposed seven situational precursors to classroom boredom, namely monotony, lack of meaning, opportunity costs, being over-challenged, being under-challenged, lack of involvement, and teacher dislike. As many of the precursors involve teachers' behaviours, teachers can play a central role in students' boredom experience in class. From an experience sampling study conducted by Goetz, Lüdtke, Nett, Keller, and Lipnevich (2013), teaching characteristics, such as presenting materials with enthusiasm and making sure that students pay attention, were negatively associated with student boredom in classroom. College students reported their lecturers' personal attributes, qualities, and teaching strategies as some of the factors determining whether a lecture is dull or interesting (Sharp, Hemmings, Kay, Murphy, & Elliott, 2017). Similarly, ninth-grade students described teachers' personality and habits of instructions as antecedents of their boredom (Daschmann *et al.*, 2014).

Theory

Empirical results

Hypothesis

Apart from teacher's personal attributes and teaching styles, teacher's emotions can influence students' affective experience. Specifically, we postulate that teacher boredom could be a precursor to student boredom. Emotional crossover refers to the transmission of emotions from one individual to another in the same social environment (Härtel & Page, 2009). The first empirical indication for the emotional crossover between teachers and students came from a study by Bakker (2005) who examined how flow experience crossed over from music teachers to their students. The study found that teachers' flow had a direct positive influence on flow among

students. Likewise, Frenzel, Goetz, Lüdtke, Pekrun, and Sutton (2009), Frenzel, Becker-Kurz, Pekrun, Goetz, and Lüdtke (2018) conducted two separate longitudinal studies that examined the emotional transmission of teacher's enjoyment towards teaching and students' enjoyment in class. They found that students' perceived teacher enthusiasm mediated the positive relationship between teacher and student enjoyment. They argued that teachers who enjoyed teaching would communicate their enjoyment of a topic or learning task through observable enthusiastic teaching style. It was by observing their teachers' visible enthusiastic teaching behaviours that students acquire the enjoyment of learning that topic or completing that task. Their argument is congruent with the indirect crossover mechanism, which posits that emotional crossover is mediated by interpersonal exchange styles (Härtel & Page, 2009).

Empirical results

Recently, Chang and Cherng (2017) extended the aforementioned three studies to investigate the crossover of discrete positive (enjoyment, hope, pride) and negative (anger, anxiety, shame, hopelessness, boredom) academic emotions from teacher to students in a sample of 890 students from twelve junior high schools in Taiwan. Students rated their teachers' and their own emotions. Results showed that students' perceptions of teacher positive and negative emotions positively predicted their own positive and negative emotions, respectively. The interplay of teacher and student discrete emotions was possible due to unconscious emotional contagion, which is based on people's perception of social interaction partners' emotional states. At an unconscious level, a person automatically and unintentionally mimics another person's facial expressions and other non-verbal cues, and these imitations act as physiological feedback that leads the person to experience the corresponding emotions (Hatfield, Cacioppo, & Rapson, 1993). It follows that students' perception of their teacher, including their teachers' emotions, will influence their own emotional experiences in academic settings.

What is unknown

Most existing literature on academic boredom focuses primarily on students' experience, and little attention has been devoted to teachers' experience. Much about teachers' boredom experience remained unknown, let alone its impacts. Teacher boredom could be an antecedent of student boredom, considering teachers' self-report of feeling bored while teaching in class (Bishay, 1996; Hensley, Pekrun, Goetz, Frenzel, & Keller, 2014), as well as the theoretical and recent empirical evidence on emotional crossover. To the best of our knowledge, this is the first study examining teacher boredom and its impact on students' learning experience. Previous findings that boredom experienced by students in class has a greater deleterious effect on academic outcomes than that experienced while studying (Tze *et al*., 2016), coupled with the importance of teachers on students' in-class learning experience (Gorham & Christophel, 1992; Skinner & Belmont, 1993), suggest a need for a closer examination on the impacts of teacher boredom.

Why it matters & what is expected

Current Study

In view of the research gaps, current study examined the relationships between teacher boredom, students' perceived teacher boredom, student boredom, and student learning motivation in classroom context. The control-value theory and empirical findings on academic boredom both suggest an inverse relationship between boredom and motivation among students. Drawing upon these theoretical and empirical evidence, in addition to recent research on emotional crossover in classroom settings, we formulated three main hypotheses: