

Pedagogical Awareness in Primary Schools: The Role of Teachers in Creating Stressful Events and their Impact on Future Primary Teachers' Development

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ABSTRACT

Despite the evidence supporting the significant role of school life events on students' learning and well-being, little attention is currently reserved for school life events in the literature. In the case of mathematics, there is an agreement that school life events related to primary teachers' in-class practices and perceived as stressful by students, affect negatively the quality of their learning. Within a framework combining cognitive and pedagogical approaches, we investigated stressful school life events in primary educational settings and their relation to a teacher's pedagogical knowledge. For the study, data were collected by interviewing a cohort of future primary teachers about their experiences when they were pupils. By using a qualitative text analysis approach, we identified three thematic groups of school life events. We conclude by highlighting the need for communicating to the wider academic and teacher community the vital role that stressful school life events play on students' learning and well-being.

Keywords: schools life events, pedagogy, primary teachers, primary mathematics education

INTRODUCTION

Stressful school events are of importance because of their effect on students' learning and well-being. Evidence supporting this are in contrast with the minimal attention

reserved for academic stressful events, particularly for mathematics education (Michie et al., 2001). In general, many authors agree that mathematics related teaching practices are perceived as stressful by the students and that high levels of stress appear to negatively affect the quality of student learning (e.g., Lumley and Provenzano, 2003). Arguably, one of the most important aspects of school events that affect the majority of students is related to a teacher's pedagogical approach when teaching mathematics. In addition, early negative experiences often have a profound impact upon a student's further progress: for example, some children when experiencing negative school life events might be more susceptible than others to the onset of a series of problems (Margalit, 2003).

Since the 1940s, a wealth of research findings has demonstrated that certain properties of life events are related to psychological dysfunctions and are potential predictors of poor performance. Research has established a strong connection between stressful events and debilitation of performance (Eysenck, 1992; Eysenck & Calvo, 1992). This relationship has been depicted in various cognitive theories throughout the previous decades (Power & Dalgleish, 2020) and much research has been conducted on stress in students. Higher stress levels have been related with lower

well-being (e.g., Frazier & Schauben, 1994; McClain & Abramson, 1995) and test anxiety (e.g., Abouserie, 1994; Gadzella, Masten & Stacks, 1998; Sloboda, 1990). A student's life is subjected to different kinds of stressors, such as the pressure of teachers to succeed through high performance. For some students, dealing with stress during school years could be challenging and learning how to manage stressful school events may help them cope with everyday academic pressures, and thus have a better educational experience. Lazarus and Folkman (1984) approach stressful events as daily events. There are studies (Kohn et al., 1994) supporting the notion that the everyday "hassles" or daily events such as conflict with friends, family or academic demands, affect negatively physical and mental health more than major life events.

During the last forty years, many different categorisations of life events have been proposed in the literature. For example, Compas (1987) recognizes acute and chronic life events. Acute life events are specific, significant and extraordinary or unexpected and may include everyday minimal events as well. On the contrary, chronic life events refer to long-term situations of personal degradation or deprivation. Other categorizations view life events differently; for example, Alder (2005) distinguishes critical life events and daily hassles that cause anxiety, stress and disturbance. Lazarus and Folkman's work (1984) involve life events that can be seen from Alder's perspective as daily hassles. These include events with friends and family but also refer to life events related to pressure in academic settings and generally have more negative effects on the mental and physical well-being when compared with major life events (DeLongis et al., 1988; Uijtdewilligen, et al., 2014). Other researchers have focused on life events from a developmental perspective: for example, in preschool age life events are related to separation anxiety whereas, in school age life events pertain to problems with the

school environment, pressure for good performance, bad relationships with classmates, pressure from parents or even family issues (Giannopoulou et al., 2022).

Research in primary settings has demonstrated that future primary teachers may develop special forms of anxiety such as mathematics anxiety, if they have experienced negative school life events while being students. For instance, Jackson and Leffingwell (1999) identified in their study school life events related to teachers' behaviour e.g., being hostile or showing signs of gender bias and their quality of teaching e.g., providing poor explanations or assuming knowledge of previous material. In more recent years, Bekdemir (2010) identified school life events related to a teacher's hostile behaviour, a teacher's inadequacy, pressure among peers as well as others related to the school environment. Bekdemir's findings were also reported by Öçal (2021) who identified school life events pertaining to a teacher's behaviour such as being authoritarian or lacking class management skills and a teacher's pedagogical approach e.g., not motivating students.

The conceptualisations and empirical studies presented so far, relate to a well-articulated approach in the literature which focusses on the emotions generated while a student experiences a negative school event and the impact that such processes have on a student's cognition, learning and well-being i.e., an approach focussing on the cognitive side of teaching and learning. However, particularly relevant to the teacher profession are also approaches that emphasise pedagogical aspects of a teacher's practice. Among the various approaches found in the literature, is the well-recognised work of Shulman (1986; 1987; 1998). Shulman distinguishes seven major categories of teacher knowledge: general pedagogical knowledge which relates mostly to general principles and strategies of classroom management; knowledge of learners and their characteristics; knowledge of educational

contexts e.g., working in groups, with the classroom; knowledge of educational values and their philosophical grounds; content knowledge i.e., knowledge of the subject; curriculum knowledge and; pedagogical content knowledge i.e., an amalgamation of content and pedagogical knowledge. According to Ball et al. (2008), the first four categories reflect the major focus of teacher education programmes at that time (i.e., in the late 1980s) whereas the last three comprise the “missing paradigm” in educational research or in Shulman’s own words “a blind spot with respect to content that characterizes most research on teaching, and as a consequence, most of our state-level programs of teacher evaluation and teacher certification” (Shulman, 1986, pp.7-8).

The literature reviewed so far, indicates that research focussing on stressful events has identified issues associated with teachers (e.g., behaviour, pedagogical approach), students (e.g., personality type, insufficiency in mathematics), the class environment and aspects of the social environment in which teachers and students act. Despite that, empirical studies about school life events taking place during a student’s primary years, their impact on future primary teachers’ development in mathematics and their relation to teachers’ pedagogical content knowledge is currently limited. Thus, in this study we ask:

1. What kind of negative events do preservice primary teachers have experienced as students?
2. How these events related to a teacher’s general pedagogy or pedagogical content knowledge?
3. Do these events have an impact on preservice primary teachers’ development as future educators?

MATERIALS & METHODS

The study took place in a Primary Education Department. The department’s curriculum is organised into modules covering a wide range of areas such as educational psychology, educational technology, STEM

education, teaching methodology as well as theoretical aspects of education and curricula. The degree’s duration is four years and during that time undergraduates must successfully attend approximately 70 modules. Undergraduates in their last year of studies have their practicum over a period of two semesters. During this time, they apply their knowledge and skills in designing, preparing and teaching lessons for a variety of subjects in primary schools. Data collection started upon receiving approval from the University of Crete’s Research Ethics Committee (approval decision number: 27/24.02.2022). The research followed a multiple-case study design (Yin, 2018) with each participant treated as a being the case. Data were collected by interviewing a group of 24 undergraduates. Participants’ ages ranged from 21 to 24 years ($M=21.2$, $SD=0.88$) with 92% identified as a female.

Each interview was semi-structured and lasted on average 40 minutes. The interviews followed a life history format which focused on exploring undergraduates’ experiences in a chronological manner. The interview protocol included open-ended questions focussing on stressful in-class events undergraduates had experienced while they were pupils themselves. At the beginning of each interview, participants were fully informed about the nature, purpose and intended uses of the study. Furthermore, it was emphasised to them the voluntary, anonymous and confidential nature of their participation. After this, participants were invited to sign a consent form following the Declaration of Helsinki. Interviews were fully transcribed and all references to names and places were removed from the data. The analytical procedure followed entailed the use of qualitative text analysis strategies, conducted in the following stages (Kuckartz, 2014): familiarisation with the data, creation of the main thematic categories, initial coding by both authors independently, creation of a common coding frame after reaching a consensus, creation

of thematic subcategories, final analysis by following a category-based strategy. Our analytical framework combined the two main perspectives found in the literature (cognitive, pedagogical) and involved the use of both theory-driven and data-driven strategies for the creation of our coding frame (i.e., the thematic categories).

FINDINGS

Participants recalled various stressful school events which were categorised into three different thematic groups; events related to teachers' (1) general pedagogical knowledge or pedagogical content knowledge, (2) in-class behaviour and (3) content knowledge of mathematics. Events associated with a teacher's general pedagogical knowledge or pedagogical content knowledge were the most frequent in the data (reported by 33.3% of the cases) and included aspects pertaining to a teacher's instructional strategies and techniques. Incidents related to a teacher's behaviour (reported by 20.8% of the cases) included the ways teachers approach their pupils and how calm/intense or polite/impolite their in-class behaviour was. Finally, a teacher's content knowledge of mathematics (reported by 16.7% of the cases) involved events during which an instructor's inadequacy with mathematics resulted a stressful learning environment for her/his pupils.

Undergraduates who experienced events related to a teacher's general pedagogical knowledge and pedagogical content knowledge, vividly recalled their surroundings, people involved and the emotions generated at the time of the incident. For a very small number of participants these incidents were not intense. For example, Student 9 described her primary teacher as a person not showing a particular interest in teaching mathematics or other subjects. She painted him as a person who "was a little bit bored" and "avoided teaching in general". This was not a single incident but rather a series of events which although not acute, created multiple

obstacles in student's learning. The result of this became apparent when the student progressed to high school:

I didn't have a solid basis in mathematics... and I entered [high school] and I struggled a lot [...] I started abruptly... too much knowledge... and I struggled [...] at first I didn't want that, I didn't like it...

However, the majority of participants reported in-class events which were dramatic in nature and involved intense situations between them and their teacher. This was particularly evident in the case of Student 19 who recalled the following episode:

"...in the fifth grade we were doing fractions, I didn't understand them and I had made some mistakes in the exercises... while the teacher was checking our solutions, she threw my notebook at me from her desk... and told me that I'm unacceptable because she has covered this topic so many times and I should be ashamed..."

According to the student's account, this incident signified her deteriorating development; in the following years she was constantly struggling, never able to "recover" or properly "understand" mathematics. As Student 19 progressed to secondary and then tertiary education, her view and beliefs about her mathematical abilities were solidified. During her practicum, these early negative experiences in primary school materialised themselves and influenced her ability to prepare her lessons:

Now I'm in the practicum and... I have to teach mathematics... while other subjects are very easy for me, to prepare, to study, to design activities for the pupils... in mathematics I don't know why, I can't do it... I feel too much anxiety... and I feel especially anxious with fractions... I think I can't do this thing to myself every time I face fractions... although I do understand fractions... I don't know why...

Other participants reported similar events; on all accounts, these episodes involved different manifestations of a teacher's

overall pedagogy. A few experiences included the use of punishment as a method for managing the class or drill methods as means for creating good study habits or enabling students to learn basic concepts. For example, Student 24 recalled an experience with his third grade teacher who was using transcription as a punishment for the students who were not able to recite multiplication tables by hand. The student remembered in a rather upsetting fashion several episodes caused by his "inability" to master the multiplication tables:

...my problem was that when you didn't know the [multiplication] they made you write it many times... I was forced... and basically my parents were forced to get me... a placemat that we had on... on the table where I was studying... [...] they were forced to buy me pencils with the multiplication tables on... not to learn the multiplication tables but to avoid getting punished again...

Other events included a teacher's overt behaviours when trying to "motivate" students in participating in a lesson. For the later, Student 23's account of her teacher embarrassing her in front of the class offers an informative view:

I remember very distinctly, that... we were doing mathematics and... and the teacher wanted someone to solve an exercise at the blackboard and... he mentioned my name... he said... "I don't think [student's name] can solve this" something like that, implying that I wasn't good at mathematics and he said... "and even if she comes, do you think she will be able to solve this?" something like that...

According to Student 23 her developmental was heavily influenced by early experiences which involved primary teachers not able to properly teach and motivate students; this is why she developed "a fear towards mathematics" which eventually resulted a "chaotic" learning experience full of "gaps":
It was a mess, chaos... I can't do mathematics, I hear mathematics and I want to run... [...] I just think I'll always have a fear towards mathematics... I must put

additional effort because I will teach at some point, in my own class... [...]

Episodes related to a teacher's behaviour include an educator's overt actions and conducts towards his/her pupils. Incidents in this category can be interpreted as chronic life events and they were mostly described by participants as being the result of their teacher's personality. For instance, Student 20 described her third-grade teacher as being constantly upset and distressed:

I had a teacher who was very anxious and she made all students feeling anxious... it was not a personal thing... [...] all this put too much pressure on me and I could not perform well in general, not only in mathematics, but in mathematics a little bit more [...] she was intense in general, she shouted a lot, so that didn't help me either, it affected me very negatively...

Finally, events related to a teacher's content knowledge of mathematics were not manifested in our data in a particularly intense manner, they were however an important obstacle in a student's development. Among the accounts demonstrating this type of school events come from the story of Students 12 and 14. Student 12 recalled:

Well... I don't remember many things but towards the last grades of primary school, I got this feeling from my teacher that she was also being afraid of mathematics... [...] we didn't do much mathematics...

Other incidents demonstrate in a more explicit manner issues pertaining to a primary teacher's content knowledge of mathematics. Student 14's account about his primary teacher is a case in point:

she made mistakes in the exercises... many times some things were... my parents saw that she was teaching us in a wrong way... my mother in particular... so because my mother couldn't help me, we turned to a private tutor... because the teacher couldn't... she was practically unable, it was very difficult for her [the teacher] to handle this...

DISCUSSION AND CONCLUSION

The study's objective was to determine and categorise the different negative school life events that future primary teachers had experienced while they were students, associate these events with teachers' general pedagogy and pedagogical content knowledge and, recognise the possible ways in which such events may affect and sculpt future primary teachers' development in mathematics. By combining a cognitive and a pedagogical approach, we were able to identify three major types of school life events in our data, with the most prominent being events stemming from a teacher's general pedagogical knowledge and pedagogical content knowledge. Overall, these episodes pertained to a teacher's specific teaching strategies (e.g., being bored, avoiding to teach, using drill and practice methods, punishing students, embarrassing students in front of the class), in-class behaviour (being agitated, upset and distressed) and content knowledge of mathematics (being incompetent in mathematics, being anxious when doing mathematics, making mistakes when solving exercises and problems).

Participants' autobiographical accounts offered a view into the impact negative school life experiences had on their development in mathematics and as future primary teachers. Many of the undergraduates participated in our study acknowledged in a retrospective manner the influence these early negative experiences had upon them. For most, the negative impact of these events continued to manifest themselves throughout their years in secondary and tertiary education, whereas for some students, these negative experiences became apparent during their practicum. Our findings are aligned with results from other studies (e.g., Bekdemir, 2010; Jackson & Leffingwell, 1999; Öçal, 2021) and demonstrate the crucial role that primary teachers play in relation to a student's learning and wellbeing. In the case of preservice primary teachers though, negative school life events seem to be even

more important as they shape future generations of teachers might (or might not) create deliberately (or not) similar stressful experiences to future generations.

In our view, the study highlighted the detrimental impact that a teacher's general pedagogical knowledge and pedagogical content knowledge may have on a student's learning. Participants in our sample were all future primary teachers and their experiences explain a significant amount of stressful events generated in the specific cohort. As such, our data and results offer useful directions which might be used in order to identify resources for supporting future primary teachers who have experienced negative events, create teacher's innovative teaching practices for future educators and enhance the awareness of the ways pedagogy can shape future generations. However, further research is required to disentangle the complexity of the teaching practices and the ways in which they affect the learning process and well-being of the students. Schools have to organize effective interventions to support teaching practices and as a consequence to minimize the experience of stressful events. Training in innovative teaching practices in schools is valuable and is a current policy focus in Greece, which traditionally has not had a strong school-based teaching practice.

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