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Attempting to Document Effects of a Mindfulness Program with  
3<sup>rd</sup> and 4<sup>th</sup>-grade Children: looking at improvements in self-rated  
Self-concept and teacher-rated Socioemotional Difficulties

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## Resumo

O principal objetivo deste estudo é avaliar como a prática do mindfulness, utilizando um modelo adaptado do WSMED, afeta os vários domínios do autoconceito de crianças que frequentam o 3º e 4º ano numa escola bilingue localizada em Portugal. Foi implementado um desenho de pré-pós teste aplicando a Escala de Autoconceito de Piers-Harris 2 e o Questionário de Capacidades e Dificuldades (versão para professores). Esta amostra é constituída por 20 alunos, com idades entre 8 e 10 anos, 17 deles tendo português como língua materna e 3 inglês como língua materna ou mais fluente. Este estudo consiste de 2 hipóteses, a primeira sendo que em comparação com o tempo 1, o autoconceito dos alunos será maior em facetas positivas e menor nas dificuldades no tempo 2. A segunda hipótese é que os alunos do 4º ano irão obter melhorias mais significativas em comparação com os do 3º ano. No entanto, nenhuma hipótese foi validada, uma vez que o teste de Wilcoxon não revelou qualquer significância ( $p > 0,05$ ) nas comparações dos tempos 1 e 2 dos resultados do PH2 e do SDQ, mesmo que os resultados apresentam uma variação positiva, embora pequena, do tempo 1 para 2 para o PH2 e baixas dificuldades no SDQ. Estes resultados poderiam ter sido influenciados por questões como o tamanho da amostra e o poder das análises. Neste estudo, também há considerações para investigações futuras com sugestões para a inclusão de outros tipos de observações, comparações entre grupos e o alargamento dos tempos de medição.

**Palavras-chave:** mindfulness, autoconceito, WSMED, estudantes, professores

## **ABSTRACT**

The main goal of this study is to evaluate how the mindfulness practice, utilizing an adapted whole school mindfulness in education (WSMED) model, affects the various domains of self-concept of children attending the 3<sup>rd</sup> and 4<sup>th</sup> grades in a bilingual school located in Portugal. It was implemented a pre-post test design applying the Piers-Harris Self-concept Scale 2 and the Strengths and Difficulties Questionnaire (teachers' version). The sample consisting of 20 students, aged between 8 and 10 years old, with 17 having Portuguese as their native language and 3 English as their native or more fluent language. This study consists of 2 hypotheses, the first being that in comparison to time 1, the students' self-concept will be higher in positive facets and lower in the difficulties in time 2. The second hypothesis is that the students in grade 4 will attain more significant improvements in comparison to the students in grade 3. The results display a positive variation, although small, from time 1 to 2 for the PH2 and low difficulties in the SDQ. However, neither hypotheses could be validated since the Wilcoxon test showed no significance ( $p > 0,05$ ) in the comparisons of time 1 and 2 for the PH2 and the SDQ results. These results could have been influenced by questions such as the sample size and the power of the analyses. In this study, there are also considerations for further investigations with suggestions for the inclusion of other types of observations, between-group comparisons, and the extension of the measuring times.

**Keywords:** mindfulness, self-concept, WSMED, students, teachers

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## INTRODUCTION

In everyday life, children and adolescents must be able to solve problems, plan, and complete tasks. This is done more efficiently when learning how to control thoughts, feelings, and behaviors and by demonstrating strong executive functioning skills. These processes lead in turn to becoming more self-directed, self-regulated and successful as a learner (Lux et al., n.d.). This can be done, respectively, by practicing mindfulness and by working on improving one's self-concept. Over the last decade, mindfulness practice has become more widespread at various levels on a global scale, especially in the educational setting (Albrecht, 2019 cited in Cardinal, 2020).

Regarding its place in child development, mindfulness practice shall be recognized as a possible assistance for children's development of their executive function skills and to encourage emotional and behavioral adjustment, benefiting even 3-year-olds (Lux et al., n.d). The growth someone's self-concept growth is necessary since it's an essential mediator variable, having causal effect on numerous desired results such as academic and life success, quality of life, and lower manifestation of risk behavior, (Marsh & Craven, 1997 cited in Lichner et al., 2021). Moreover, the expectancy-value theory (Eccles & Wigfield, 2020 cited in Lohbeck et al., 2021) assumes that expectancies of success reflect individuals' ability beliefs (i.e., self-concepts) which influences many achievements related to outcomes (Lohbeck et al., 2021).

In the current globalized society, English has become one of the most spoken languages, so much so that English has become a key area for learning along with the country's native languages (Tsui & Tollefson, 2017 cited in Chen et al., 2022). There are also many international schools worldwide where English is the primary language spoken and in which the lessons are taught. Consequently, there is an increase in the number of bilingual students. Regarding this group's strengths, allegations, as of late, state that bilinguals could have raised executive functions in comparison to monolinguals as a result of the concurrent development and extended use of 2 language systems. This leads to infer that bilinguals could have ampler and plentiful opportunities to encounter the benefits and the potential use of executive functions and metacognition, which would translate into a more positive self-concept. Studies have found enhanced executive functions in bilingual children in comparison to monolingual



children (De Cat et. al, 2018; Kalashnikova & Mattock, 2014; Kapa & Colombo, 2013; Morales et al., 2013; Poarch & Van Hell, 2012; Tse & Altarriba, 2014; Yang & Yang, 2016 cited in Festman & Schwieter, 2019), suggesting that bilingual children have better executive functions due to “the demands placed by bilingualism on brain networks and structures within them that subserve domain-general executive functions” (Antoniou, 2019 cited in Festman & Schwieter, 2019). However, studies like those by Fernández, Gaete, and Terrén (2008) revealed significantly poorer classroom integration among immigrant students as opposed to native-born students, yielding higher rejection rates and lower acceptance levels among fellow pupils. In addition, Giró (2011) highlighted how immigrant students appear to have a narrower circle of friends than their Spanish peers; the first group needs to feel “surrounded” by people their own age as well as from the same culture who they can easily identify with. Consequently, immigrant students express lower levels of trust in their Spanish classmates who they consider circumstantial friends (Palomino, 2017). Consequently, students who are immigrants and involved in two language teaching systems could also face special challenges.

Extensive studies have been done on self-concept, more specifically in the school setting, which highlight its importance for socioemotional functioning, learning success and well-being, making this domain one that is of high relevance to be assessed in relation to gains from mindfulness practice or programs for students.

Shemesh and Heiman (2021) highlight an important positive correlation between self-concept and resilience, and of these two concepts with their sense of well-being (SWB). Furthermore, the authors study the importance of these personal dimensions in the case of the negative event of having been a victim of bullying, suggesting that they mediate the deleterious impact of bullying victimization on SWB. The study confirmed that bullying victimization is significantly negatively correlated with self-concept and resilience. The implication of this outcome relates to the importance of school interventions which are both effective in preventing bullying among children and help them overcome the impact of any negative events in their self-concept. In the face of the centrality of the quality of relations with the caregiver, family and peers, children face their own and diverse challenges. It has been observed that the support and the depth of a relationship with mother and friends is of high importance, and that girls perceive higher support than boys. Furthermore, it was observed that the boys reached a higher score in conflicts with their parents and peers inside and out of school. (Lichner et al.,

2021). Furthermore, the study by Cordeiro et al. (2021) highlighted a relation between children's ability to recognize other's emotions and their self-evaluation, especially regarding those in primary school, with the consideration however that there were few studies in this area.

The current study explores the literature on mindfulness and self-concept, with a particular focus on bilingual and immigrant students, and the research of the effects of the application of mindfulness programs in the educational setting. The empirical study endeavors to evaluate how a mindfulness program, in whole school mindfulness in education (WSMED) model, affects the various domains of self-concept of children aged between 8 and 10 years old that are attending the 3<sup>rd</sup> and 4<sup>th</sup> grades in a bilingual school located in Portugal.

# **1. THEORETICAL FRAMEWORK AND LITERATURE REVIEW**

## **1.1 Mindfulness and its implementation in the school setting**

Mindfulness based programs commenced in the late 1970s, generally taking the form of a string of weekly group lessons which encompass the practice of movement and meditation, and psychoeducational training about stress and reactivity (Crane et al., 2017; Kabat-Zinn, 1996 cited in Norton & Griffith, 2020). Mindfulness is an awareness practice that arises through paying attention, on purpose, in the present moment, and without judgment (Kabat-Zinn, 1982 cited in Adams & Branscome, 2020) through formal specific ‘practices’ such as awareness of breath or mindful movement (Norton & Griffith, 2020).

Participants are encouraged to sustain their attention on internal experiences and inquire into these, as well as participate in a collective inquiry into universal human vulnerability (Crane et al., 2017 cited in Norton & Griffith, 2020). Mindfulness involves four key elements: observation, interpretation, awareness, and acceptance. The function of the nonjudgmental stance is to create an internal environment in which emotions and thoughts can occur without interference or suppression (Adams & Branscome, 2020). This encourages participants to develop a new relationship to their experience, by seeing their own thoughts, behaviors, and emotional and physical states from a more ‘witnessing’ stance, within a wider space of awareness (Norton & Griffith, 2020).

Mindfulness of the body is a common focus in the mindfulness practice and is where one must direct their attention to the physical sensations experienced within the body (Kerr et al., 2013 cited in Adams & Branscome, 2020). Body-focused mindfulness practices usually require the focus of the attention on physical sensations and the development of an understanding of how emotions can influence the body. While sensory mindfulness involves the directing of the awareness to each of the body’s sensations and perceptions in the moment (e.g., what sounds are heard, the temperature of the room) (Adams & Branscome, 2020).

Schools are supposed to be settings that promote positive development and not just places for learning. They can play an important part in the promoting and the protection of health, cultivating well-being and competence, and in supporting one’s ability to cope with life’s stresses and challenges (European Network for Mental Health

Promotion, 2009 cited in Sheinman et al., 2018). In recent years, it has been recognized that preparing children for life requires an educational approach where teachers should not only provide formal education but that also respond to the social-emotional needs of students that experience challenges which affect their ability to focus, regulate difficult emotions, and thus help them build resiliency (Cardinal, 2020). One of the best places to propose mindfulness programs to younger people and the school staff may be the more adequate people to administer them (Zenner et al., 2014 cited in Norton & Griffith, 2020). Introducing mindfulness in the school context is practical since children aged 6 - 18 spend 6 - 8 hours each day in school, with initiatives being brought directly to them as an intrinsic part of their educational process (Rempel, 2012; Zenner et al., 2014 cited in Sheinman, 2018).

Mindfulness practices are suitable for the school setting and enhances the school counselor's repertory of skills and techniques in a meaningful and practical way. Lessons are usually brief, needing minimal resources, and are relatively simple to implement (Adams & Branscome, 2020). When selecting the mindfulness interventions that are most developmentally appropriate, it should consider the students' cognitive development, attentional capacity, level of interest, and engagement. The time the mindfulness practices take should vary according to the developmental level with the lessons with small children are typically being short (Adams & Branscome, 2020). Moreover, to maintain the learner's interest and engagement, the practice tasks need to be varied, involve multiple senses, and resort to metaphors and analogies, to illustrate concepts with older children, (Thompson & Gauntlett-Gilbert, 2008 cited in Adams & Branscome, 2020).

Mindfulness can be incorporated by school counselors in their daily routines with students. Firstly, as part of an existing school-wide social and emotional learning curriculum, they may introduce mindfulness practices to all students (Adams & Branscome, 2020). Regarding how to do this, Meiklejohn et al. (2012 cited in Norton & Griffith, 2020) detailed 3 ways that mindfulness can be introduced to the school classrooms: indirectly - where the teacher's own mindfulness practice and embracement of mindful approaches and demeanor could be inherently passed to the students; directly - through mindfulness interventions where the students learn mindful skills and practices; or with blending of both previous approaches. Resonating with the World Health Organization initiative, the Health Promoting Schools (Sheinman and Hadar, 2017 cited in Sheinman et al., 2018). Health-promoting schools, with a positive impact

on students, teachers, and the larger social environment, view to pursue the enhancement of the emotional, social, physical, and moral well-being of the school (World Health Organization, n.d. cited in Sheinman, 2018). A whole-school mindfulness in education (WSMED) model, when planned with consideration to these principles, imply that the integration of mindfulness in the school curriculum is long-term, with the engagement of schoolteachers, parental incorporation, and the introduction of a gradual long-term process to influence the school's climate. The influence on coping habits and its improvement to their ability to respond to everyday challenges, stressors, and difficulties are some of the possible benefits of a long-term school-based mindfulness program (Sheinman et al., 2018).

## **1.2 Benefits of mindfulness: Research on the effectiveness of Programs**

Occasional stress is a normal part of life. It also helps people to develop resiliency and supports our immune system. However, two types of stress can have negative impacts on people: acute and chronic stress. Acute stress is experienced after exposure to a traumatic experience such as witnessing a death, abuse, or violence. Chronic stress refers to high stress over long periods of time. These types of stress have negative effects on children's psychological, emotional, and cognitive functioning, which directly affect brain development, academic success, and social competence (Jensen, 2013 cited in Cardinal, 2020). Students who are anxious experience emotion dysregulation as well as cognitive and physical symptoms of anxiety which may lead to students to feeling overwhelmed and unable to participate effectively in the classroom (Adams & Branscome, 2020).

Mindfulness is connected to the improvement of executive functions, a mental process that takes place in the prefrontal area of the brain and enable a person to plan, focus attention, remember instructions, and multitask successfully (Flook et al., 2010 cited in Browning & Romer, 2020). The practice of being in the present moment provides an opportunity to observe and accept whatever experiences and emotions a person may be feeling (Huppert & Johnson, 2010 cited in Cardinal, 2020). It is important to learn how to respond rather than react when difficult emotions arise (Cardinal, 2020). Choosing to respond with intention rather than reacting in an automatic way may reduce negative behaviors, such as anger or aggression (Huppert &

Johnson, 2010 cited in Cardinal, 2020). Mindfulness elements of awareness and non-judgment are helpful to those with anxiety (SubicWrana et al., 2014 cited in Adams & Branscome, 2020), and combining social-emotional learning with mindfulness-based programs could augment the development of young children (Lux et al., n.d). When using mindfulness to cope with stressful situations, exercises that focus attention on breathing are recommended (Adams & Branscome, 2020) as well as teaching healthy coping mechanisms as part of the Mindfulness lessons. Furthermore, children can be encouraged to find out about other strategies on their own, since they have been shown to be able to acquire them by observing parents or learn them in and out-of-school activities (Sheinman et al., 2018) and have been shown to use the skills presented in the lessons over time (Lux et al., n.d).

Training in schools increases students' focus and attention, improves self-regulation of difficult emotions, and develops positive social skills (Cardinal, 2020) vital in supporting individuals with academic and social success as well as enhancing well-being (Cardinal, 2020). Moreover, mindfulness has been linked with outcomes which indicate a positive school climate, and that include a cultivation of compassion and empathy, which can have impact on how students feel comfortable and welcome at school (Birnie, Speca, & Carlson, 2010), it can increase well-being, positive emotions, and lead to experiencing friendship and popularity (Miners, 2008). It can improve self-regulation (Flook et al., 2010 cited in Browning & Romer, 2020) and executive function skills (Flook et al., 2010 cited in Lux et al., n.d) in a way that becomes sustained over time over time. Research linking mindfulness practices to academic improvement has also bore results, demonstrating reduced test anxiety, increased student concentration and focus on cognitive tasks in the classroom and improvement in reading competences (Napoli et al., 2005; Ortner et al., 2007; Jennings, 2018 cited in Browning & Romer, 2020). Interventions can improve commitment and behavioral regulation, even in the case when there weren't noteworthy peer interaction effect and self-regulated attention (Lux et al., n.d). Mindfulness-based programs have shown to have statistical significance on the effects on the improvement of facets of psychological functioning, namely reducing anxiety stress and depressions symptoms, and significantly increasing self-compassion (Roeser et al., 2013; Rupprecht et al., 2017; Benn et al., 2012; Beshai et al., 2016 cited in Norton & Griffith, 2020).

In other groups, such as teachers, it has been demonstrated to improve empathetic concern and emotional regulation; and to bring vast reductions in burnout

symptoms, as well as self-reported efficacy improvements and in independent ratings of a teacher's classroom behavior (Benn et al., 2012; Taylor et al., 2016; Flook et al., 2013; Roeser et al., 2013; Frank et al., 2015; Rupprecht et al., 2017; Kemeny et al., 2012 cited in Norton & Griffith, 2020).

Ever since the increase in the interest relating to the practice and implementation of mindfulness programs, there has been a great number of scientific studies investigating the efficiency of mindfulness at various levels and contexts, one being the educational context. Each of the studies done in schools varies in the longevity of the Mindfulness programs, the duration of each of the sessions/lessons, age and quantity of participants, and their objectives.

Several studies implemented either a treatment and control group methodology or a pre-post test to study the efficacy of mindfulness interventions in the school context, with children from preschool to middle school:

A. One study researched the implementation of MindUP, which is a mindfulness-based education program consisting of 15 lessons taught approximately once a week for 40-50 minutes to students from 4<sup>th</sup> and 5<sup>th</sup> grades. This included lessons that promoted self-regulation and awareness of the present moment. This program also incorporated social-emotional exercises that taught students skills for empathy, compassion, and promoted positive thinking. MindUP students, in comparison to students in a regular social responsibility program, showed significant increases in not only cognitive skills but also social and emotional competencies (Schonert-Reichl et al., 2015 cited in Cardinal, 2020).

B. Similarly, the Madison Metropolitan School district study assessed a curriculum that promoted social, emotional, and academic skills through mindfulness practices over the course of 12 weeks twice a week, with 30 students. The results indicated that in addition to improved academics, these students demonstrated less selfish behavior over time and more mental flexibility (TeachThoughtStaff, 2019 cited in Cardinal, 2020).

C. In three public Israeli schools a study was conducted assessing mindfulness interventions with a universe of 646, 9–12 years old students. One had for 13 years been implementing the whole school approach, the second for one year, and the third didn't have an mindfulness implementation (Sheinman et al., 2018). This study researched an existing WSMED program named "Mindful Language", which had been integrated in Israel's schools since 1999 (Semple et al., 2017 cited in Sheinman et al., 2018) and

aimed to explore if the children partaking in the mindfulness practice were more likely to apply coping strategies, that were mindfulness-based, in their daily lives and to investigate age and gender differences (Sheinman et al., 2018).

D. Flook et al. (2015) evaluate the mindfulness-based curriculum's efficiency (Kindness Curriculum, 2013 cited in Lux et al., n.d) implemented in 6 Midwest elementary schools, containing 7 preschool classrooms each, by qualified mindfulness instructors. The experimental group had mindfulness sessions for 12 weeks, twice a week lasting for 20-30 minutes each. The results showed that the experimental group had better social competences and sharing behaviors, and that children who had the lowest baseline function levels were the ones who were best impacted from the mindfulness curriculum (Lux et al, n.d).

E. Poehlmann-Tynan et al. (2015) tested the exploratory effects that an intervention which utilized a mindfulness curriculum had upon the self-regulation and empathy of preschool children, consisting of a pre-, post-, and post-post research design. This was a 12-week intervention with twice-a-week lessons for 20-30 minutes. This study attempted to establish the impact and improvement of the intervention on empathetic and compassionate behaviors and on self-regulation and executive functioning skills of the children. Results showed that not only was there improvement in the self-regulation of the children, but that it maintained over time (Lux et al., n.d).

F. A study done by Lemberger-Truelove et al. (2018) explored the social and emotional learning among 3 and 4-year-olds from low-income families, that were frequenting a child-care summer program, which hypothesized that learning and behavior habits of children could be magnified by interventions that were mindfulness-based. For 11 children, the lessons were given during 40 minutes in a span of 8 consecutive weeks, with 4 days of lessons in each week. All lessons starting with music, breathing exercises and a movement activity, then with a didactic guidance of a distinct mindfulness or social-emotional skill, finishing with a discussion on how the sessions could be practiced during the day and with breathing and movement activities. The results of this study showed an improvement in engagement and behavioral control but without significant influence on peer-interaction and self-regulated attention (Lux et al., n.d).

Even though these are just some of the many investigations on the mindfulness practice in schools and its effects, relying on studies about specific mindfulness



programs, which usually consist of a curriculum with specific practices and skills (Browning & Romer, 2020).

### **1.3 Children and adolescent's Self-concept: importance for behavioral, educational and life outcomes**

The importance of self-concept lies in the significant role it plays in character formation. According to Musitu, García, and Gutiérrez (1994 cited in Palomino, 2017), self-concept is understood as the notion an individual has of oneself, based on experiences with others and on how they evaluate their own behavior, encompassing emotional, social, physical, family, and academic aspects.

In order to understand it, it is essential to focus on the general factors and principles of self-formation, and on the problems of defining the actual 'I' in the formation of identity (Blatný, 2010 cited in Lichner et al., 2021). Kohoutek (2001 cited in Lichner et al., 2021) says that self-concept is 'the result of a complex process of self-appraisal, evaluation of their own qualities in relation to other people and in relation to their own ambitions and goals'. The characteristics associated with self-concept according to Shavelson, Hubner, and Stanton's (1976 cited in Palomino, 2017) model are as follows: it is multifaceted, as people categorize the vast amount of information, they have about themselves and establishing relationships with peers; and it is organized hierarchically with perceptions of self across different subareas (academic self-concept in language, mathematics, etc.). General self-concept is stable, but as one goes down the hierarchy, self-concept becomes increasingly more situation-specific and, as a result, less stable; As people grow and develop, self-concept takes on a more complex, multifaceted structure (Palomino, 2017) and is influenced by other people, situations, and culture (Pestana, 2014 cited in Lichner et al., 2021). Therefore, self-concept involves the past, present, and future (Lichner et al., 2021).

The concept of self includes a wide spectrum of terms referring to different areas of 'self'. These include self-concept, self-image, self-esteem, self-worth, and self-efficacy (Konečná et al., 2007 cited in Lichner et al., 2021). According to various authors, namely, Blatný and Plháková (2003), Fialová (2007) and Procházka (2011), self-concept consists of three basic psychological aspects: cognitive, emotional, and cognitive. The cognitive aspect amounts to the self-concept's structure and content. It is

the capitulation of the entire knowledge about oneself that is organized cognitively in a specific way into a structure. The emotional aspect relates to the emotional relationship to one's self, to which it is widely important the empowerment from the surrounding environment, principally from family and friends. However, the conative aspect states that during the development, one becomes the main factor of their behavior's mental regulation. (Blatný & Plhánková, 2003; Výrost & Slaměník, 2008 cited in Lichner et al., 2021).

Zhan Smith and Wethington (1996) underline that self-concept is a critical part of the whole system, that incorporates the connection between self-appraisal, anxiety, depression, perceived stress, and coping strategies (Lichner et al., 2021). Both Rosenberg (1979) and Harter (1993) claim that a person who perceives themselves as competent in domains in which they aspire to excel will have positive self-esteem. Harter and Rosenberg used framework for the definition of self-esteem has much in common with the concept of self-esteem which can be conceptualized as the level of global consideration someone has for themselves as individuals (Leary & Baumeister, 2000).

Self-concept is closely related to the individual's behavior in the environment, which is highly affected by their perception of themselves as part of the system (Lichner et al., 2021). High levels of self-concept is related to a positive evaluation of one's self-worth and one's sense of competence and are considered contributors to one's overall SWB and, specifically, a buffer against depressive symptoms (Sowislo & Orth, 2013; Steca et al., 2014 cited in Shemesh & Heiman, 2021). Adolescents with a positive self-concept can be considered to have high academic results, tend to achieve great career opportunities, and are accepted by their peers and authorities (Bharathi & Sreedevi, 2015 cited in Lichner et al., 2021). A self-concept that is globally positive has demonstrated to have on academic achievement, a positive influence and between domain-specific self-concept and their related accomplishment, a positive and strong relationship. (Marsh, 1993 cited in Festman & Schwieter, 2019).

Self-concept that is developed in a negative way during adolescence is associated with various maladaptive, behavioral, and emotional problems (Lichner et al., 2021). Lower levels of mastery and relatedness indicate poorer self-concept and feelings of depression, but not social anxiety (Shemesh & Heiman, 2021). The risk factors enter the person's life when self-concept is developed inadequately, or more

precisely undeveloped, which influences their ability to bring direction and action in life (Lichner et al., 2021).

According to Harter and Pike (1984), self-concept formation commences in early childhood. In this phase it is principally defined by children's magnified positive self-beliefs shaped by environmental experiences, which, with age, is progressively differentiated. Significant others and reinforcement from the environment, may be a key role in the self-belief's refinement. Self-perceptions and more realistic evaluations of oneself develop during the 3rd grade. (Shavelson et al., 1976; Harter, 1996; Möller et al., 2015; Chapman & Tunmer, 2003; Martschinke et al., 2006 cited in Festman & Schwieter, 2019). In early childhood, children typically show a very positive physical self-concept and high motivation in physical activities, which increasingly decline during adolescence (Marsh et al., 1998; Harter, 2012 cited in Lohbeck et al., 2021).

The self-concept of children involves structures, such as the feeling of high personal value, which are a vital aspect of their mental health (Harter, 2012; Resett et al., 2016). Family has a substantial influence on self-evaluations made by children. Children build their primary self-concepts based on the family environment, constituting a foundation for secondary self-concepts, which in turn are created through relationships outside the family (Resett et al., 2016 cited in Cordeiro et al., 2021). Social support, especially friendship, is important for enhancing the self-concept of children (Huurre et al., 1999, 2001; Shapiro et al., 2008 cited in Augestad, 2017). As children get older, they naturally tend to seek more involvement with friends rather than with their family members, where they can experience different activities that help them develop independency and well-being (Huurre & Aro, 1998; Olsen et al., 2008 cited in Augestad, 2017).

#### **1.4 Reciprocal influences of school setting and the self-concept**

Self-concept represents an important variable, which seems to be the driving force to success at school and in life. The educational system significantly influences its improvement (H. J. Liu, 2009; O'Neill, 2015; Shavelson et al., 1976; Van Boxtel & A Monks, 1992 cited in Lichner et al., 2021). Children's educational success is in turn a strong predictor of their income across the adult life (Tamborini et al., 2015 cited in Buchmann et al., 2021). The same holds for children's academic self-concept and

educational attainment, which represent longitudinal predictors for academic adjustment (Ehm et al., 2019; Lazarides et al., 2015; Marsh & Martin, 2011; Marsh et al., 2005; Weidinger et al., 2018 cited in Buchmann et al., 2021).

In the educational domain, Students' thoughts and perceptions of themselves and their academic capabilities has seized momentum due to the undeniable function they serve in comprehending what motivates them to act or abstain from acting in classroom contexts (Erten and Burden, 2014 cited in Zhang, 2022). The personal thoughts and perceptions of students about themselves and their academic abilities are called "student academic self-concept" (De Fraine et al., 2007 cited in Zhang, 2022). According to Marsh and Martin (2011 cited in Zhang, 2022), student academic self-concept refers to "students' personal beliefs of their academic abilities and skills that are developed through experience with and interpreting the learning environment". Mercer (2011 cited in Zhang, 2022) extended this definition to the educational domain, by defying student's academic self-concept as individual viewpoints in regard to their academic capacities and learning skills. Self-concept shows a perception of self in a specific domain of work area (Bong and Skaalvik, 2003; Guo et al., 2021 cited in Chen et al., 2022), although, it works for the internal or external frame of reference, which influences students' personal belief about strong areas wherein they can perform successfully (Grilli and McFarland, 2011 cited in Chen et al., 2022). Primary school years are of great importance when it comes to developing students' self-concept, given that this is a time when children become aware of their academic achievements, their popularity among peers, and how teachers react to their gestures, attitudes, successes, and failures. Thus, the individual's sense of identity increases, which in turn has an impact on self-acceptance, building character, and strengthening one's self-esteem (Cardenal, 1999 cited in Palomino, 2017).

The school self-concept can be influenced by numerous factors. It can change during the course of a lifetime since it is influenced by the interactions with the surroundings, becoming more abstract, differentiated, organized, and dependent on the perception of other people. Interpersonal relationships are stronger in high school grades in comparison with the previous life stages possibly because the classroom as a group has a more stable system of roles and values, giving the opportunity for a confrontation during an exchange of opinions to the expression and clarification of own attitudes in the interaction with peers (Čapek, 2010; Širuček & A Širučkova, 2012 cited in Lichner et al., 2021).

The development of both parental educational aspirations and child academic self-concept is embedded in the educational context in which these processes unfold. Institutional characteristics of the educational system that structure educational trajectories may help shape the process (Buchmann et al., 2021). It is speculated that school self-concept of an adolescent bears an association with the support and the depth of the relationship with both parents, friends, and classmates and the perceived conflicts with those relationships may have a negative association with school self-concept (Lichner et al., 2021).

According to Lantieri, Nagier, Harnett, and Malkmus (2011 cited in Palomino, 2017), there is a growing recognition that socioemotional development is conducive to improved school and life achievements in children, by focusing on self-awareness, self-management, social awareness, and relational skills based on cooperation and responsible decision-making. Conversely, the study carried out by Naranjo (2007 cited in Palomino, 2017) has shown how students who think negatively about themselves impose greater limitations on their achievements, whereas De la Orden and González (2005 cited in Palomino, 2017) have found academic and social self-concept to be negatively correlated with poor school performance.

### **1.5 Impact of mindfulness programs on students' self-concept**

According to Lavilla, Molina, and López (2008), psychoeducational programs based on mindfulness techniques can help minimize distractions, reduce anxiety, impulsivity, and suffering, increase concentration, and help accept fewer positive conditions or events, enjoy the present, and boost self-awareness. Various studies also show the positive effects of mindfulness-based programs on students with educational needs. For example, Semple, Reid, and Miller (2005) proved the effectiveness of mindfulness approaches in the work of students with anxiety disorders. Beauchemin, Hutchins, and Patterson (2008) carried out a study on these techniques among adolescents with learning disabilities, demonstrating the benefits to these students' self-assessment of anxiety, social skills, and academic achievements.

Furthermore, studies also emphasize benefits in areas of students' self-perception. Franco, Soriano, and Justo's (2010) study involving Latin American students revealed how a psychoeducational program for developing mindfulness

produced significant improvements in self-concept and academic performance. Kuyken et al. (2013) assessed the efficacy and acceptability of a mindfulness-based intervention to enhance mental health and well-being by addressing factors such as taking on tasks without fear and enjoying them, self-esteem, and empathy. The participants who practiced mindfulness more often reported fewer depressive symptoms, lower stress, and greater well-being. Similarly, Franco, De la Fuente, and Salvador (2011) found this program to be a valid and appropriate instrument for improving personal growth and self-realization. Furthermore, this approach has garnered empirical support for its inclusion and use in education to improve the psychological and emotional well-being of immigrant adolescents (Soriano & Franco, 2010).

Focusing on students' self-concept, it has been claimed that the practice of mindfulness has the following positive effects: enhances the development of skills needed when forging interpersonal relationships (Carson, Carson, Gil, & Baucom, 2004; Goleman, 2006), it increases empathetic responses (Shapiro, Schwartz, & Bonner, 1998), and it helps nurture self-compassion (Leary, Tate, Adams, & Hancock, 2007; Shapiro, Brown, & Biegel, 2007). What is more, the daily practice of mindfulness enables the students to manage their personal energy to achieve good physical and mental health. This approach results in new functions related to emotional balance, response flexibility when faced with life's myriad of situations, fear extinction, increased morality, and intuition (Siegel, 2012) as well as the development of more satisfactory interpersonal relationships (Williams & Penman, 2010 cited in Palomino, 2017)

As pointed out by Arguís (2014), mindfulness in education can counteract daily stresses, whereby experiences are played out in a more attentive and mindful manner, making it possible to assimilate new information in a calmer, more relaxed fashion. As a result, learning improves, the risk of information overload is avoided, and some of the ingredients for personal and social development and well-being promotion in schools are provided, thus complementing academic learning approaches (Palomino, 2017).

## 2. OBJECTIVES

The main goal of this study is to evaluate how the mindfulness practice, in whole school mindfulness in education (WSMED) model, affects the various domains of self-concept of children attending the 3<sup>rd</sup> and 4<sup>th</sup> grades in a bilingual school located in Portugal, implementing a pre-post test design

According to Harter and Leahy (2001) and Harter (2015), children between 8 and 11 years-old are able of self-description in relation to various areas of their lives, revealing that they already have created a model of themselves, not only based on their own representations and evaluations but also by the evaluations of others (Resett et al., 2016 cited in Cordeiro et al., 2021). Also being able to differentiate the diversified domains of self-concept (Jacobs et al., 2002 cited in Cordeiro et al., 2021).

Moreover, the study compared self and teachers' perspective on potential improvements, by incorporating the child's self-perception and teachers' ratings of critical behavioral dimensions. The first being analyzed by utilizing the Piers-Harris Self-Concept Scale 2 and the second, by using the Strengths and Difficulties Questionnaire (teachers' version).

### 3. HYPOTHESES

Due to the strategies and subject matters that were addressed in mindfulness activities implemented in the program, children were expected to learn to accept and better control their reactions and emotions, become more prosocial, deal with their problems in a more adaptive way and thus, improve their self-concept.

The literature has shown that WSMED model significantly contributes to disposition of students to utilize mindfulness-based coping strategies, and that the number of years practicing mindfulness having a significant effect. Ten-year-old students, in comparison to 9-year-olds, showed a significantly higher inclination to use mindfulness-based coping strategies (Sheinman et al., 2018).

As such, it is reasonable to assume that the ongoing regularity of mindfulness in a whole-school mindfulness in education (WSMED) program as launched in the Bilingual School would succeed in raising the use of these new resources by the students in response to daily events in family and school settings, toward better coping. Thus, improvements were expected in behavioral, interpersonal, and personal domains, reducing any difficulties felt, and improving the positive aspects.

Hip.1: Ratings of the participant children's self-concept at time 2 assessment will be significantly higher in positive facets (strengths), and significantly lower in negative ones (difficulties) comparatively with time 1 assessments. This Time 2 to time 1 comparison is expected to hold for both age groups.

Hip. 2: 4th grade students will attain more significant improvements in the assessments of their behavior and self-concept with the program compared with the 3rd graders.



## **4. MATERIALS AND METHOD**

### **4.1 Sample**

The sample is composed of 20 students attending Colégio St. Paul's School, a private international school located in Coimbra, Portugal. These students are from 3<sup>rd</sup> and 4<sup>th</sup> grades. Furthermore, all the students participate in a bilingual curricular program where they have lessons in both the English and Portuguese language. Seventeen of the students are Portuguese native speakers and 3 (all frequenting the 3<sup>rd</sup> grade) have English as their native or more fluent language. All students in the sample have ages ranging between 8 and 10 years old and similar economic status.

Colégio St. Paul's School has a year-round mindfulness program implemented for all the students from kindergarten to the 4<sup>th</sup> grade. The mindfulness program is administered by the school Psychologist in Portuguese with translation (if necessary) available to the students who are natives, or more fluent speakers, of the English language.

### **4.2 Instruments**

The instruments utilized in this study were the Piers-Harris Children's Self-Concept Scale 2 and the Strength and Difficulties Questionnaire (SDQ). Both instruments are psychometrically validated. The instruments were chosen as they have similar questions relating to behavior, emotions, and relationships in children.

The Piers-Harris Children's Self-Concept Scale was published in 1963 with the purpose of evaluating the self-concept of children and adolescents as a self-report and brief instrument. Originally it was composed of 80 self-referent assertions (Piers et al., 2002), but later, it was revised and reduced to 60 items. The scale is administered from ages 7 to 18 and response time is from 10 to 15 min (Piers et al., 2002). Both versions contain 6 domain scales: Behavioral Adjustment (BEH); Intellectual and School Status (INT); Physical Appearance and Attributes (PHY); Freedom From Anxiety (FRE); Popularity (POP); and Happiness and Satisfaction (HAP) (Piers et al., 2002).

In the Scale 2 version BEH is composed of 14 items, INT by 16 items, PHY by 11 items, FRE by 14 items, POP by 12 items and HAP is composed of 10 items (Piers et al., 2002). Some of the items are found in more than 1 scale as shown in.

In the Piers-Harris version 2, the items are answered by circling *no* or *yes* to each of the affirmations. The scores are calculated by attributing a value of 0 or 1 to answers, according to how the item is formulated. Approximately half the items are phrased in a positive direction and the other half in an inverted way (Piers et al., 2002).

The Strengths and Difficulties Questionnaire (SDQ) was created to be a brief questionnaire utilized as behavioral screening (Goodman, 1997). There are 3 forms of the instrument, one for teachers, one for parents and one for the students. The content of the questions is the same but adapted to each source. The students' form of the SDQ is applied if the child is in the age range of 11 to 17 years. Otherwise, the teachers and parents' forms of the SDQ can be filled out if the child is aged between 4 and 17 years old (Goodman, 1997).

Furthermore, each of the forms of the SDQ is made up of 25 questions that are used to assess 5 different areas (Goodman, 1997). These areas are Emotional Symptoms (EMO), Conduct Problems (CON), Hyperactivity (HA), Peer Relationship Problems (PRP) and Prosocial Behavior (PROS), with 5 items in each one (Goodman, 1997). Items are answered by classifying the affirmation as *not true*, *somewhat true*, or *certainly true*.

The scoring of the SDQ is performed by attributing to the answers *not true* 0 points, *somewhat true* 1 point and *certainly true* 2 points, apart from 5 items which have an inverted score. These items are: 7, 11, 14, 21 and 25 (Goodman, 1997). Moreover, the results for the SDQ can have a 4-band division (which is the most recently created division), in which the cut-points are divided into *close to average*, *slightly raised*, *high*, or *very high* (Goodman, 1997).

### 4.3 Procedures

The Mindfulness program in Colégio St. Paul's School utilizes a whole school mindfulness in education (WSMED) model. The sessions lasted for 30-45 min, taking place once a week during the entirety of the school year. For both 3rd and 4th grade, the mindfulness sessions adopted the same structure. Each session started with a 5-

minute relaxation exercise, in which calming music was played and, with orientation, the students did stretching and breathing exercises. Subsequently, the students were involved in a practical task. The activities were planned in advance to work peer relationships, the basic emotions (anger, sadness, fear, happiness, calmness and in love), social and environmental awareness etc. by utilizing various mediums such as: videos, stories, drawings, activity sheets etc. The sessions ended with a discussion of how the experience and task resonated with their everyday lives.

An informed consent form was developed and handed out to the children to have the parental consent for them to participate in the study. Once the consent forms were obtained, the student was included as a participant, with his/her personal identification concealed by attributing a randomized single letter to the questionnaire according to a pre-established code.

The Piers-Harris Self-Concept Scale 2 and the Strength and Difficulties Questionnaire (SDQ) (teachers form) were both applied in 2 different moments, following the same procedure, firstly in the beginning of the 2<sup>nd</sup> trimester and then in the end of the 3<sup>rd</sup> trimester, within a time span of 15 weeks between the first and the second applications.

In the application of the Piers-Harris 2, the students were individually taken to a separate room to minimize outside interference and distractions, resulting in a more controlled environment for the children to respond. Once in the quiet environment, it was explained that there were no right or wrong answers, that they were asked to respond to what they thought was the truthful answer regarding their perspective of the questions. It was also explained that in case of uncertainty, they should answer *yes* in case the affirmation is true all or most of the time, and *no* in case it's false all or most of the time. The children were encouraged to ask freely should they have any doubts about the meaning of a certain word, and when it occurred, it was offered an explanation or definition.

The teacher forms of the Strengths and Difficulties Questionnaire (SDQ) were given to the homeroom teachers of the students, that is, one for the 3<sup>rd</sup> grade and another for the 4<sup>th</sup> grade students. The homeroom teachers were asked to fill the SDQ for each of the students in their homeroom class who were participants in the study.

Statistical analyses were performed with the use of the spss software, version 25. Descriptive measures of central tendency and dispersion were calculated, and the non-parametric Wilcoxon test, for comparing two related samples, in this case, for

comparing the measures in time 2 to those in time 1, in each group, was employed in order to test the hypotheses.

## 5. Results and discussion

The global descriptive statistics for the Piers-Harris 2 and the SDQ difficulties in time 1 and 2 for both grades (3<sup>rd</sup> and 4<sup>th</sup>) are presented in **Table 1**. The values were overall higher, in absolute value, in the 4<sup>th</sup> grade in comparison to the 3<sup>rd</sup> grade, both in time 1 and time 2.

**Table 1 - Global descriptive for Pier-Harris 2 (values from 0 to 1) & SDQ's Difficulties by grade in times 1 and 2 (values from 0 to 2)**

		Global_PH1	Global_PH2	Global_Dificulties_SDQ1	Global_Dificulties_SDQ2
Grade 3	<i>M</i>	0,79	0,81	0,30	0,29
	SD	0,12	0,14	0,22	0,18
	Min	0,57	0,55	0,05	0,05
	Max	0,93	0,97	0,90	0,65
Grade 4	<i>M</i>	0,94	0,95	0,16	0,21
	SD	0,03	0,04	0,10	0,14
	Min	0,88	0,88	0,05	0,05
	Max	0,98	1	0,30	0,40

While the descriptive statistics for the PH2 subscales for both grades in time 1 and time 2 are presented in **Table 2**. As shown in the table, the 4<sup>th</sup> grade has an overall higher scoring, in the PH2 subscales, in absolute values, in comparison to the 3<sup>rd</sup> grade.



The descriptive for the SDQ's subscales, between time 1 and 2, are shown in **Table 3** for both 3rd and 4th grades having values ranging from 0 to 2. The values that compose the SDQ's difficulties (EMO, COND, HA and PRP) have  $M < 1$  at all times and for both grades 3 and 4. This suggests that while there could be a case (or very small number of cases) displaying some difficulties in both grade groups (with the highest absolute values in grade 3 being in the EMO subscale, 1,20 in time 1, and HA in both times being 1,40 and in grade 4 with the highest absolute value being 1,40 in the subscale HA in time 2), most cases display low difficulties, with the highest  $M$  being 0,72 in the HA subscale in time 1, which in time 2 decreases to 0,60. The positive facets of prosociality are higher, in absolute value, in the 4th grade.

**Table 3 – Descriptive for SDQ's subscales by grade in times 1 and 2 (values from 0 to 2)**

		EMO_1	EMO_2	COND_1	COND_2	HA_1	HA_2	PRP_1	PRP_2	PROS_1	PROS_2
Grade 3	<i>M</i>	0,17	0,28	0,22	0,23	0,72	0,60	0,08	0,06	1,60	1,58
	SD	0,34	0,30	0,26	0,27	0,40	0,37	0,17	0,13	0,37	0,42
	Min	0	0	0	0	0	0	0	0	0,80	1
	Max	1,20	0,80	0,80	0,80	1,40	1,40	0,60	0,40	2	2
Grade 4	<i>M</i>	0,09	0,26	0,03	0	0,40	0,46	0,11	0,11	1,94	1,89
	SD	0,16	0,28	0,08	0	0,38	0,65	0,20	0,20	0,10	0,16
	Min	0	0	0	0	0	0	0	0	1,80	1,60
	Max	0,40	0,80	0,20	0	1	1,40	0,40	0,40	2	2



The SDQ's difficulties can be subdivided into externalizing and internalizing factors, as seen on **Table 4**. Grade 3 has maximums in both factors which are, in absolute value, higher than grade 4's (apart from the internalizing factor in time 2, which displays the same value, of 0,60 in both grades). This is compatible with a reduction of both internalizing and externalizing difficulties, with age, either in all, or in some children, who might have been more challenged in time 1 period, as an improvement, possibly as a result of their better coping capacities. It could be a part of general socioemotional outcomes, namely, mindfulness practices in the prior school year.

**Table 4 – Descriptive for externalizing and internalizing factors of SDQ by grade in times 1 and 2 (values from 0 to 2)**

		Externalizing_ SDQ1	Externalizing_ SDQ2	Internalizing_ SDQ1	Internalizing_ SDQ2
Grade 3	<i>M</i>	0,47	0,42	0,12	0,17
	SD	0,28	0,25	0,24	0,18
	Min	0	0	0	0
	Max	0,90	0,90	0,90	0,60
Grade4	<i>M</i>	0,21	0,23	0,10	0,19
	SD	0,20	0,33	0,15	0,21
	Min	0	0	0	0
	Max	0,50	0,70	0,40	0,60

This trend was not tested for its statistical significance, however, because the study was focused on intra-subject time comparisons. It remains just an observed difference between the groups, who also differ in other aspects. It is noteworthy, however, that this difference was not expected on the basis of the literature reviewed, as it suggested that children in 3rd grade often have higher levels of self-concept ratings than children at the very end of primary school (Jacobs et al., 2002; Upadyaya & Eccles, 2014 cited in Festman & Schwieter, 2019).

Descriptively, Piers-Harris mean global scale scores displayed a positive variation from time 1 to time 2, although very small in degree (in the order of the

centesimals of the answering scale), for both groups. Accordingly, subscale scores mostly increase slightly in absolute value across time (again in the order of centesimal values), with some exceptions, Physical and Popularity subscales in the 3rd grade and Intellectual and Happiness ones in the 4th grade do not increase.

Employment of the Wilcoxon test, for comparing the global PH2 scores in time 2 to those in time 1, in each group, showed that there were no statistically significant differences, with  $p = 0,25$  for the 3<sup>rd</sup> grade and  $p = 0,50$  for the 4<sup>th</sup> grade. The same test applied to PH2 subscales also displays an absence of significance of the differences across measuring times for most subscales, except subscale INT for the 3rd grade, which had  $p = 0,03$ . However, this result was not corrected for multiple pairwise comparisons (in the case, 6 pairwise comparisons, corresponding to 6 subscales), and the increase in error rate that ensues. The Bonferroni correction implies dividing the accepted  $\alpha$  by the number of tests, in this case, dividing 0,05 by 6, which equals 0,008. Consequently, using this correction, no difference in measures of PH subscales across time can be found for the samples.

Trends about variations in absolute values of the SDQ from time 1 to time 2 are not consistent in the two groups. The global score of difficulties of the SDQ for grade 3 has a decrease in the values from time 1 to time 2, but this variation is very small, in the order of a hundredth of the answering scale unit. However, for the 4th grade, there is a slight increase in the mean values from time 1 to 2, similarly small, in the order of several hundredths. However, in the 3rd grade, it can be noticed that there is a more marked decrease (in the order of the decimals) in the highest value observed, the maximum.

The Externalizing and Internalizing subscales do not show consistent declines from time 1 to time 2 in the 3rd grade group. A decline in mean Externalizing is very small, and not accompanied by a decrease in its maximum value, which remains constant, and a similarly small increase in mean Internalizing scale is to be observed, notwithstanding a decrease in the value of the highest observation of 3 decimals. These scales do not show any decreases in the 4th grade, possibly displaying increases, albeit very small in absolute values.

The outcome of the Wilcoxon test, applied to the comparison of measures in Time 2 and Time 1, of the global score for the SDQ difficulties, did not indicate significant differences, with  $p = 0,93$  for the 3rd grade and  $p = 0,39$  for the 4th grade. Similarly, there were no significant differences across time measures for the SDQ

subscales (Internalizing and Externalizing scores) resulting from the application of the Wilcoxon test, with all the values having  $p > 0,05$ .

Thus, recalling Hypothesis 1 and 2. The first stated that the ratings of the participant children's self-concept at time 2 will be significantly higher in positive facets (strengths), and significantly lower in negative ones (difficulties) comparatively with time 1 assessments. This time 2 to time 1 improvements should hold for both age groups. The second hypothesis claimed that the students in the 4th grade would attain more significant improvements in the assessments of their behavior and self-concept with the program compared with the third graders.

By testing differences in children's self-assessment in the time1 and time2 it is not possible to find consistent and statistically significant improvements in self-concept, as measured by the PH2 scale, and by its subscales or scores, in neither age group. The PH2 subscale Intellectual and School Status (INT) was the one closer to displaying a significant difference, in the grade 3 group.

Identically, by testing differences in teachers' rating of the children's difficulties in time 2 to time 1, there were no significant differences found, in any of the age groups. Consequently, the hypotheses were not supported by the outcomes of the statistical tests on the data. General improvements in positive domains of the self-concept, by children's self-ratings and in the negative ones, by teachers' ratings of their difficulties, could not be confirmed in either age group.

Concerning the second hypothesis, the tendency for improvement in the self-concept and difficulties, for grade 4, isn't perceived possibly due to the absolute values being already elevated for the self-concept and low for the difficulties.

As an additional consideration, there is another kind of variation in the results that can prove relevant for the longitudinal comparison wherein outcomes of effects the systematic mindfulness intervention with children can be traced and studied: the higher or lower observations, possibly outliers, belonging to children with worse than average or better than average scores, because they have better coping strategies or higher strengths, or because they face more intense difficulties, could indeed evolve over time with the mindfulness systematic experience. If indeed such programs can elevate the children's coping strategies, their effects are expected to be even more notorious when there are difficulties with which children need to learn to cope with. In this direction, it could be observed that 3rd grade children with the highest level of difficulties reported by the teachers (0,90) had an apparent decrease, in absolute values, in internalizing

scores, albeit not in externalizing scores. The highest values of 4th grade children in Internalizing or in Externalizing scales seemed to increase in T2, but it should be noted that the level of these difficulties in the 4th grade children never reached so high values (from 0,40 to 0,70) as in 3rd grade children (0,90).

Based on the qualitative observation of patterns in the data, a conjecture can then be formulated, that time 2 to time 1 longitudinal comparisons within subjects, in both groups, could contemplate comparisons within clusters of students with more negative behavior or self-concepts. This comparison could be more fruitful if changes tend to occur in the responses to problem areas, as some literature suggests.

## CONCLUSION

Based on a small sample of 20 students, ranging from ages 8 to 10, the present study aimed to explore how the various domains of self-concept are affected by a mindfulness program that utilizes a whole school mindfulness in education (WSMED) model. Two questionnaires were applied, the Piers-Harris 2 and the SDQ, in 2 instances (T1 and T2) with a 15-week interval between them.

The variations in the PH2 global descriptive are increasing, suggesting a positive trend towards improving self-concept not reaching a statistically significant level, however, variations in teachers' mean ratings of children's difficulties with the SDQ at both times are not so consistent. They display a decreasing trend at an observational level, only in the 3<sup>rd</sup> grade, and this difference is not statistically significant. If, overall, the children in the 3<sup>rd</sup> grade could have had an improvement in difficulties perceived by the teachers with the mindfulness program, it was not possible to confirm this beneficial effect of the program.

There was a trend in the data, not checked regarding its statistical significance for students in the 4<sup>th</sup> grade to present higher self-concepts and fewer difficulties in comparison to the 3<sup>rd</sup> grade students, which is in disagreement with the literature (Jacobs et al., 2002; Upadyaya & Eccles, 2014 cited in Festman & Schwieter, 2019). This higher functioning self-concept for the 4th graders could derive from general developmental capacities, and/or educational opportunities, including the practice of mindfulness in the prior year, as well as reflect other factors imprinting a difference on the age groups samples. However, neither of the hypotheses of this study were able to be validated by the results.

Although the results provide a good insight into the possible effects mindfulness programs might have on self-concept domains, a limitation of this study is that there was a small number of participants in the investigation, resulting in a small database and lower statistical power. Correlatively, the small sample size affects the outcome of statistical tests, like the Wilcoxon test. Furthermore, there were only 2 moments in time where the questionnaires were applied in this study, creating a 2-time comparison that was not very distanced in time, 15 weeks apart, which can be considered a very restricted time period limiting the investigation of the possible longitudinal effects mindfulness could have on the self-concept.

A conjecture was made that, given the short interval between pre-test and post-test assessments, that teachers might be able to identify potential changes in children's behavior before they could translate into changes in children's own perceptions of themselves. It was also conjectured that, although time 2 to time 1 comparisons were made across the groups, longitudinal comparison within clusters of students with more negative behavior or self-concepts might be more fruitful, if changes tend to occur in the responses to problem areas.

Therefore, further research should be contemplated, where the measures can be extended, such as measuring times, e.g., before the beginning of the intervention, in its initial phase or phases, in the end of the intervention, and a follow up months later. It should also extend to older children, e.g., children in the 5<sup>th</sup>, 6<sup>th</sup>, or 7<sup>th</sup> grades. Moreover, it should overcome the present study limitation of not incorporating a between- groups comparison. An analysis of combined groups (experimental vs control, with controls not experiencing a mindfulness intervention) and time factors (T2 vs T1) would allow for general passage of time effect, or even developmental gains in time, as confoundings for the effect of the implementation of the mindfulness intervention. Other types of observations can also be seen as useful, for instance parental observation and in various environments, such as recess and at home.

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## APPENDIX

### Authorization

As part of the Masters in Educational, Developmental and Counseling Psychology, from the Faculty of Psychology and Educational Sciences, University of Coimbra, I am required to carry out a research project during the final year of the course.

I, Caroline Bender Zevallos, as a trainee at St Paul's School, and collaborating in several of the Psychopedagogical Department' activities, intend to analyze the effects of mindfulness practice on children's well-being. To do this, I intend to use questionnaires (mainly for the 3<sup>rd</sup> and 4<sup>th</sup> grade students) focusing on children's perceptions about their self-concept, their abilities and difficulties.

In this sense, I hereby request your permission, as a parent/ guardian, to give the following questionnaires to your child: *Abilities and Difficulties Questionnaire and Piers-Harris Self-concept Scale 2*. These will be applied at two different moments, at the beginning of the 2<sup>nd</sup> term and at the end of the 3<sup>rd</sup> term, so as not to create fatigue in the child.

There will be no expense or risk involved in this application. The children's participation is absolutely voluntary, and their wishes will be respected if they wish to withdraw at any time during the process. The data collected is strictly anonymous and confidential and will be used only for this purpose.

Any doubts or questions that you may have regarding your child's participation can be clarified by contacting the school.

Kind regards,

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(The Master's Student)

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(The Psychologist at St Paul's School)

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(The University Advisor)

I, \_\_\_\_\_, as the parent or guardian, declare that I have been informed of the nature and procedures of this research, as well as the guarantees of confidentiality, and give permission for my child's to participate.

Date: \_\_\_\_\_

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(Parental consent form)

## Consentimento Informado

No âmbito do Mestrado em Psicologia da Educação, Desenvolvimento e Aconselhamento, pela Faculdade de Psicologia e de Ciências da Educação, da Universidade de Coimbra, é requerida a realização de um trabalho de investigação, no ano final do curso.

Eu, Caroline Bender Zevallos, encontrando-me a estagiar no Colégio St Paul's School, e colaborando nas várias atividades do Departamento Psicopedagógico, proponho-me analisar os efeitos da prática do mindfulness no bem-estar das crianças ao longo do tempo. Para tal, pretendo utilizar questionários relativos à perceção das crianças, designadamente do 3º e 4º anos do 1º ciclo, sobre o seu autoconceito e as suas capacidades e dificuldades.

Neste sentido, venho pedir a sua autorização, enquanto Encarregado de Educação, para aplicar ao(a) seu(sua) educando(a) os seguintes questionários: Questionário de Capacidades e Dificuldades e Escala de autoconceito de Piers-Harris 2. Estes serão aplicados de forma espaçada para não criar cansaço na criança e em dois momentos distintos, no início do 2º período e no fim do 3º período.

Esta aplicação não acarretará nenhuma despesa ou risco. A participação das crianças é absolutamente voluntária, sendo respeitada a sua vontade caso queiram desistir a qualquer momento do processo. Os dados recolhidos são estritamente anónimos e confidenciais e serão usados somente neste âmbito.

Qualquer dúvida ou questão que possa surgir em relação à participação do(a) seu(sua) educando(a) pode ser colocada solicitando contacto através do colégio.

Atenciosamente,

\_\_\_\_\_  
A mestranda

\_\_\_\_\_  
(A Psicóloga do Colégio St Paul's School)

\_\_\_\_\_  
(A orientadora da Faculdade)

Eu, \_\_\_\_\_, enquanto Encarregado de Educação, declaro ter sido informado/a da natureza e dos procedimentos da presente investigação, bem como das garantias de confidencialidade, e dou autorização para a participação do(a) meu(minha) educando(a)

Data: \_\_\_\_\_

\_\_\_\_\_  
(Encarregado de educação)