

How relaxing develops and affects well-being throughout childhood

Sabbiana Cunsolo, Victor Cebotari, Dominic Richardson
and Marloes Vrolijk

Office of Research – Innocenti Working Paper
WP 2021-18 | Dec 2021



UNICEF OFFICE OF RESEARCH – INNOCENTI

The Office of Research – Innocenti is UNICEF’s dedicated research centre. It undertakes research on emerging or current issues in order to inform the strategic direction, policies and programmes of UNICEF and its partners, shape global debates on child rights and development, and inform the global research and policy agenda for all children, and particularly for the most vulnerable.

UNICEF Office of Research – Innocenti publications are contributions to a global debate on children and may not necessarily reflect UNICEF policies or approaches.

UNICEF Office of Research – Innocenti receives financial support from the Government of Italy, while funding for specific projects is also provided by other governments, international institutions and private sources, including UNICEF National Committees.

This project was co-funded by The Learning for Well-being Foundation and the Fetzer Institute.

LEARNING FOR WELL-BEING FOUNDATION

The Learning for Well-being Foundation convenes catalysing partnerships aimed at bringing the voices and qualities of children more fully into creating well-being for themselves and their communities. Its activities cultivate the capacities of children, and the adults who interact with them, to transform each other and the world, while realising their unique potential throughout their lives. To know more visit www.learningforwellbeing.org.

FETZER INSTITUTE

The Fetzer Institute is helping build the spiritual foundation for a loving world. Working with thought leaders, the Institute develops programmes, research projects, convenings and funding collaborations in the sectors of faith, spirituality, democracy, education and organizational culture. Learn more at fetzer.org.

The findings, interpretations and conclusions expressed in this paper are those of the authors and do not necessarily reflect the policies or views of UNICEF.

This paper has been reviewed by an internal UNICEF panel consisting of staff with subject matter or methodological expertise.

The text has not been edited to official publications standards and UNICEF accepts no responsibility for errors.

The designations employed in this publication and the presentation of the material do not imply on the part of UNICEF the expression of any opinion whatsoever concerning the legal status of any country or territory, or of its authorities or the delimitations of its frontiers.

Extracts from this publication may be freely reproduced with due acknowledgement. Requests to utilize larger portions or the full publication should be addressed to the Communications Unit at: florence@unicef.org.

For readers wishing to cite this document, we suggest the following form: Cunsolo, S., Cebotari, V., Richardson, D., Vrolijk, M. (2021). *How relaxing develops and affects well-being throughout childhood*, Innocenti Working Paper 2021-18, UNICEF Office of Research – Innocenti, Florence.

No conflicts of interest were reported by the authors.

Correspondence should be addressed to:

UNICEF Office of Research – Innocenti
Via degli Alfani, 58
50121 Florence, Italy
Tel: (+39) 055 20 330
Fax: (+39) 055 2033 220
florence@unicef.org
www.unicef-irc.org
twitter: @UNICEFInnocenti
[facebook.com/UnicefInnocenti](https://www.facebook.com/UnicefInnocenti)

© 2021 United Nations Children’s Fund (UNICEF)

Graphic design: Alessandro Mannocchi, Rome

Cover illustration: Sandbox Inc.

How relaxing develops and affects well-being throughout childhood

Sabbiana Cunsoloⁱ

Victor Cebotariⁱⁱ

Dominic Richardsonⁱⁱⁱ

Marloes Vrolijk^{iv}

ⁱ Research Consultant, UNICEF Office of Research – Innocenti

ⁱⁱ Strategic Advisor – Academic Affairs, University of Luxembourg

ⁱⁱⁱ Chief, Social and Economic Policy Analysis, UNICEF Office of Research – Innocenti

^{iv} Research Consultant, UNICEF Office of Research – Innocenti

ABSTRACT

The purpose of this study is to map the empirical and theoretical evidence of children’s ability for ‘relaxing’ as a core capacity for life within the Learning for Well-Being Foundation’s (L4WB) theoretical framework, and how it interacts with overall child development (ages 0–18). More specifically, this review aims to contribute to existing knowledge in three ways: (i) it adds to the evidence of relaxing as a core capacity for children from a childhood development perspective, (ii) it assesses the interaction of relaxing with other core capacities and with overall child well-being, and (iii) it looks at the development of relaxing as a core capacity among significant adults in children’s lives (e.g., teachers, educators, parents) who are involved in their care and their skills development. Although the available evidence is limited, results show that ‘relaxing’ (and its related proxy concepts of mindfulness, meditation, contemplative science) can be helpfully considered a core capacity according to some aspects of L4WB definition: i) it can be developed through training and practice; ii) it can impact positively on children’s life through the reinforcement of cognitive, personal and interpersonal skills (e.g., improvements in executive functioning and empathy); and iii) it enables children to cope effectively with stress by improving their well-being. Studies tended to focus on the middle-childhood age range, and some are linked to other core capacities, namely ‘noticing’, ‘reflecting’ and ‘empathizing’. The literature review confirmed evidence of the effects of relaxing interventions on adults working with children, most notably teachers in schools. In general, relaxing interventions are beneficial to teachers’ emotional and professional functioning but there is little evidence of how these benefits in adults extend to children in their care.

CONTENTS

1. INTRODUCTION	5
2. CONCEPTUAL UNDERPINNINGS	5
3. METHOD	6
3.1 Search strategy and selection criteria	6
3.2 The sample	7
3.3 Applying the Matrix of Four Perspectives	8
4. RESULTS	9
4.1 Relaxing, mindfulness and contemplative practices: theoretical issues	9
4.2 Mental and physical relaxation for children and effects on well-being	12
4.3 Mindfulness, contemplative practices and age development	14
4.4 Mindfulness and meditation interventions in schools	15
4.5 Contemplative practices and well-being outcomes for children	17
4.6 Relaxing and contemplative practices in teachers and benefits for children	19
4.7 Mindfulness and spirituality	20
5. RELAXING AND ITS PHYSICAL, EMOTIONAL, MENTAL AND SPIRITUAL DIMENSIONS	21
6. DISCUSSION	23
6.1 Complementarity with other core capacities	25
6.2 Limitations	26
6.3 Implications for practice and future research	26
REFERENCES	28
APPENDIX A: INCLUSION CRITERIA	32
APPENDIX B: RECORDS FLOW	33

1. INTRODUCTION

The role of children’s key abilities in determining their chances in life is gaining increasing interest in the research on child well-being.¹ It is now increasingly recognized that children need a balanced set of cognitive, social and emotional skills to fully develop their potential and become adults. Children’s ability to achieve goals, work effectively with others, and manage emotions are essential skills to develop in order to face the challenges of an increasingly complex world.

This purpose of this study is to map the existing evidence of children’s ability related to ‘relaxing’ as a ‘core capacity’. The aim is to inform real, positive and efficient changes in general policies and practices for child development. From a developmental perspective, skills or capacities, such as ‘relaxing’, are commonly considered necessary for children to achieve optimal development and reach their full potential. From this perspective ‘relaxing’ can be considered a capacity that could help children to cope with emotional and behavioural problems and lower their levels of stress and anxiety. To the best of our knowledge, this is the first attempt to map the existing evidence of cultivating ‘relaxing’ as a key core capacity with an explicit focus on children, and understand age-related development, links to well-being and other core capacities, and the levels and application of ‘relaxing’ among significant adults in children’s lives. These contributions will help inform real, positive and efficient changes in general policies and practices for child development.

This study has four sections. The first section gives an overview of the background and general context of the project. The second section details the methodology employed to search the literature and the selection of studies. In the third section, the results are described. The fourth section discusses these results in terms of main findings, quality of the data, limitations, contribution to existing knowledge, and implications for future research.

2. CONCEPTUAL UNDERPINNINGS

The overview of ‘relaxing’ provided by L4WB states that “the fundamental quality of relaxing is that we have access to all our resources. In the body, relaxing allows one to be more fully present to experience all of one’s senses as well as what is needed; in the mind, it allows stillness and clarity; in the feelings, relaxing is a first step in allowing one to listen to and be with one’s emotions” (O’Toole et al., 2016, p. 23).

According to the L4WB hypothesis, each core capacity can be experienced through each perspective (mental, emotional and physical) and should have a spiritual dimension. Based on the L4WB definitions for relaxing, the Matrix of Four Perspectives is applied to categorize all studies identified in this working paper (see *Table 1*).

Applying the matrix to the capacity for ‘relaxing’ contributes to understanding how the literature allows for the theoretical classification of this capacity within L4WB’s four perspectives. The results section compares all studies placed in the matrix as a full body of evidence. More background information on the development of the matrix is available in the MWM overarching background paper.

¹ “The true measure of a nation’s standing is how well it attends to its children – their health and safety, their material security, their education and socialization, and their sense of being loved, valued, and included in the families and societies into which they are born” (UNICEF, 2007, p. 3).

Table 1: Matrix of Four Perspectives on relaxing

			SPIRITUAL (S)
	<i>content</i> 'what'	<i>process</i> 'how'	<i>intention</i> 'why'
MENTAL (M)	A <i>mental perspective</i> refers to “our cognitive and rational processes” and the functions of “envisioning, planning and valuing” (O’Toole, 2016, p. 17).	“A <i>mental</i> expression of relaxing can be associated with an experience of stillness, quiet and clarity, often allowing opinions, judgements and personal ‘rules’ to ease” (Learning for Well-Being, 2019, p. 2).	“At a <i>spiritual</i> level, relaxing relates to experiencing flow and acceptance (in some traditions, referred to as the experience of grace)” (Learning for Well-Being, 2019, p. 2).
EMOTIONAL (E)	An <i>emotional perspective</i> refers to both “our intrapersonal functions – our inner feelings, motivations and our interpersonal functioning – [and] our interactions with others” (O’Toole, 2016, p. 17).	“An <i>emotional</i> expression of relaxing relates to the quieting of one’s emotions, often allowing a shift in feelings or one’s relationship to those feelings” (Learning for Well-Being, 2019, p. 2).	
PHYSICAL (P)	A <i>physical perspective</i> refers to “the physical senses, to our bodies, and to the material and natural environments” (O’Toole, 2016, p. 17).	“A <i>physical</i> expression of relaxing is associated with physical ease: a shift in activity and a release of tension throughout the body” (Learning for Well-Being, 2019, p. 2).	

3. METHOD

In the following section the methodology is described, including the search strategy, the selection criteria and how the final literature was selected.

3.1 Search strategy and selection criteria

To conduct the literature review on the ‘relaxing’ capacity in children, a systematic search was conducted in the following electronic databases: Google Scholar, ERIC, PubMed, the EBSCO Academic Search Premier database, and PsychINFO, the Psychological Database in Pro Quest.

The screening stage retained only peer-reviewed studies. Furthermore, studies had to fulfil strict inclusion criteria of being conceptually coherent, using appropriate methods, and being scientifically valid (Appendix A). The time frame for inclusion of studies was set at 20 years (1999 to 2019), but some studies from the 1980s or 1990s were also considered based on their relevance for this study. All searches were recorded in an archival system, including details for each search, number of studies included at the first screening stage, details of studies rejected (based on inclusion criteria) and list of studies accepted. Duplicates were excluded in the identification phase (Appendix B, Records Flow).

Guided by leading experts in areas of child development and relaxation the search was conducted using relevant and closely related keywords and combinations of keywords: 'relaxing', 'relaxation', 'mindfulness' or 'meditation', AND child* OR adolescent* AND well-being OR development. All possible combinations of terms across keywords were used separately for each database (i.e., relaxing AND child* AND wellbeing/ or relaxing AND adolescent* and well-being, etc.). Other keywords used were: no/lack of stress; being calm; anti-stressed; tensed; unwind, in combination with 'children' and 'adolescent' and 'well-being/development' but no relevant results appeared using these rounds of keywords.

All findings were sorted based on the 'relevance' criteria and the first 25 studies were retained for screening for each keyword or combination of words used (e.g., the first 25 studies ordered by relevance found through Google Scholar for 'relaxing AND child* AND wellbeing' were screened). For each combination of search terms, the relevant literature was screened by including systematic reviews or meta-analysis, and secondly by including empirical studies and theoretical studies.

Responding to the gap in evidence of 'relaxing' from the perspective of spirituality, an additional search round was conducted. To identify high-quality evidence relating to spirituality and relaxing, the input of various experts was considered, including the Learning for Well-Being Foundation, the Fetzer Institute and relevant individual researchers focusing on spirituality. Among a list of 44 articles, the same key search terms were used in the text of each full article or book chapter in order to search for connections of the 'relaxing' capacity to spirituality. The suggested articles and books were included only when there was an explicit reference to spirituality in relation to the relaxing capacity with an explicit focus on children or adults who have a direct link with children. After this process, none of the articles included the terms 'relaxing' or 'relaxation' in a meaningful way for the objective of this review, nor was spirituality to be connected to the 'relaxing' capacity in children. However, using the terms 'mindfulness' and 'meditation' more relevant results were encountered across the list of articles, but most of these studies did not explore deeply the connection with spirituality in children, except for one article which has been selected.

The inclusion and exclusion criteria were applied to the resulting list of spirituality articles. Moreover, the same quality assurance inclusion criteria as in the general 'relaxing' searches applied (see Appendix A).

3.2 The sample

To be included in this literature review, studies had to fulfil several criteria determined prior to starting the systematic search to reduce potential bias. First, each study had to focus on children, that is participants under the age of 18, or adults working with children (i.e., teachers, educators). Second, studies had to be conceptually coherent, use an appropriate methodology, and be scientifically valid (Appendix A). The ethical considerations of each study were also reviewed, but they were not an inclusion criterion for this review. Studies that explored the development of 'relaxing' solely in adults without any links to children or adolescents were excluded.

The searches conducted in the databases uncovered 59 papers in total, 34 of which were retained for this study. The 25 papers excluded did not meet the inclusion standards or were duplicates. Another paper was retained among the list of spirituality articles, while the other 43 were rejected.

In total 35 studies were retained, which were reviewed to respond to the research interests of this analysis and are presented in the following sections.

3.3 Applying the Matrix of Four Perspectives

Each of the studies included in the review was positioned within the Matrix of Four Perspectives in order to answer the question to what extent the L4WB hypothesis is supported with evidence. The matrix from Table 1 was applied to organize the articles in the various categories and levels (content, process or intention). Table 2 provides descriptions of possible studies for the various categories, and it was used to categorize the included studies. The descriptions inside the boxes are based on L4WB publications (*see Table 2*).

After the matrix was applied to the papers reviewed, two of the authors compared the application matrix, discussed the placement of articles, and made necessary adjustments. When an agreement was not reached the authors checked the application of the matrix again and discussed the questioned papers until an agreement was reached. Overall, of 24 articles included in the matrix, after review, the placement of 8 articles was adapted.

Table 2: Types of studies for the Matrix of Four Perspectives

	<i>content</i> 'what'	<i>process</i> 'how'	SPIRITUAL (S)
			<i>intention</i> 'why'
MENTAL (M)	Studies on the presence of the capacity in children.	Studies that explore how the capacity develops throughout childhood/ in response to specific individual interventions.	Studies on how children perform/show the capacity and studies on spirituality.
EMOTIONAL (E)	Studies on the relationship between the capacity and feelings/interpersonal relationships.	Studies on how relationships and/or feelings relate to the capacity.	
PHYSICAL (P)	Studies on the physical aspects of the capacity, or on doing the action.	Studies into how doing the action and/or the physical environment relate to the capacity.	

4. RESULTS

The existing evidence does not provide a clear overarching definition for ‘relaxing’. The concept has loose connections across different disciplines and integrates subtle nuances of presence in different studies that relate to child well-being and skills behaviours. According to the Learning for Well-Being Foundation relaxing is “A state of feeling centred and ready to act fully. This can be a physical activity, ranging from running to breath work or it may be a more meditative practice requiring physical stillness, or a number of other activities” (O’Toole 2016, p. 23). Results emerging from the literature search for ‘relaxing’ are rarely as straightforward. In fact, the term relaxing is not covered well with empirical evidence and relates mostly to aspects and proxies, such as response to ‘music’, ‘mental and physical trainings’, and especially ‘mindfulness and contemplative practices’. Indeed, only a few studies emerged as ‘relaxing’ in the search of the keywords. Using the keyword ‘relaxing’ in reviewed databases frequently resulted in studies connected to mindfulness, perhaps reflecting the process of studying relaxing through these practices. Thus, expanding the search terms to ‘mindfulness’ and ‘meditation’ brought in a large evidence base related to effects and engagement of children in this area of study.

In the following section, the results of these studies are presented, starting from a theoretical overview extrapolated from studies selected for the scope of this review.

4.1 Relaxing, mindfulness and contemplative practices: theoretical issues

Despite the generic knowledge on the topic, there is no easy way to define relaxing as a core capacity, nor is there a single agreed definition or clear theoretical insight on ‘relaxing’ per se as a concept in scientific research. The L4WB definition of ‘Relaxing’ provides space for a wide interpretation of relaxing and approaches the concept as a skill and from a holistic perspective.

The sparse empirical evidence in scientific research looks at relaxing from different perspectives and rarely as an intrinsic capacity itself. Indeed, relaxing is often measured according to the absence of stress or tension.

Relaxation is a physical state, which may be affected by mental or emotional stress (Srilekha et al., 2013). As such relaxing is often studied as a practice designed to cope with stress and anxiety among children. Stress is one core factor in the physical, mental and emotional distress of children, and relaxing is embedded in the study of these conditions (Gilbert and Orlick, 2002; Srilekha et al., 2013). In a medical or biological context, stress is a physical, mental or emotional factor that causes bodily or mental tension (Srilekha et al., 2013, Larson et al., 2010; Gilbert and Orlick, 2002). Stressors can be external (from the environment, psychological, or social situations) or internal (illness, or from a medical procedure).

Conversely, the lack of stress and relaxation can reduce blood pressure and heart rate, muscle tension, and depression, and improve concentration among children (Gilbert and Orlick, 2002). Notably, processes linked to relaxing can provide the strength to face negative stressful situations, deal with emotions and help look for solutions that are most beneficial for children. Most evidence indicates that relaxing is important, if not essential, to reduce anxiety and enhance physical and psychological well-being (Knox et al., 2011; Srilekha et al., 2013). As such, most of the existing evidence considers relaxing and its effectiveness through the lens of practice and training methods. Practices such as meditation, visualization, muscle relaxation and mindfulness have been studied prominently in scientific research on children.

Considering the proxy evidence of relaxing and children, mostly from a stress-reduction perspective, this study broadens the understanding of this core capacity to include mindfulness and meditation practices. An emerging field of study, namely ‘contemplative science’, has focused on studying relaxing practices of stress reduction, such as mindfulness, meditation and yoga, which are being used in Western culture to bring about a state of inner calmness and well-being. Mindfulness is an attribute of consciousness that is defined as the ability to pay intentional attention to present moments, especially with the ability to notice one’s own thoughts, emotions and sensations with an open, curious and non-judgmental attitude (Bishop et al., 2004). A core assumption of mindfulness is that people generally live with an ‘automatic propensity’ that often makes them unaware of their behavioural patterns and of their continuous past- and future-related thoughts and ruminations (Bishop et al., 2004). This condition of ‘mindlessness’ may contribute to improving health and psychological outcomes linked to anxiety, depression, emotion dysregulation and negative mood (Kabat-Zinn, 2003).

By contrast, the state of mindful awareness, which can be developed through ‘meditation’ practices, allows individuals to stay in the here and now and to experience present-moment reality with an open and accepting attitude. This skill can result in more flexible, adaptive behaviour with consequent beneficial health effects at both physical and mental levels (Davidson and Kaszniak, 2015). Mindfulness-Based Stress Reduction, one popular mainstreamed programme, is used for stress reduction and meditation worldwide. The evidence from this programme shows positive effects on children and adolescents in lowering their stress, and depression, and improving their executive functioning, self-regulation and empathy (Kabat-Zinn, 2003). Thus, the state of mindfulness (attentional state) produces effects on the brain that can enhance children’s performances, beyond just the absence of stress (the classical understanding of relaxing based on physical relaxation and absence of stress). More evidence is needed to better understand the complexity of conditions that influence and promote relaxing skills among children.

Table 3 provides a brief description of the conceptual understanding of relaxing encountered in scientific literature, by including insights from the mainstream knowledge and from proxy concepts of mindfulness, meditation, and contemplative science which emerged from the available literature.

Table 3: Understanding Relaxing and related concepts

Concept	Insight
Narrow overview of Relaxing (physiological)	Muscle and mental relaxation, lower stress, anxiety, reduction of heartbeat, blood pressure, skin temperature (Srilekha et al., 2013; Knox, 2011; Lohaus and Klein-Hessling, 2003, Gregoski et al., 2011).
Holistic overview of Relaxing	Contemplative science studies consider practices of awareness and relaxing, such as mindfulness interventions, meditation and yoga. All these practices aim to bring relaxation in the mind and body and produce effects for various positive well-being outcomes. These practices bridge the empirical study of the science of consciousness and the subjective, experiential study of consciousness through contemplation (Davidson and Lutz, 2008; Greenberg and Harris, 2012; Bishop et al., 2004).

Table 3 shows a narrower concept of relaxing, which is studied in scientific literature as a stress-reduction variable, producing well-being outcomes under a physical and mental dimension (e.g., muscle relaxation, lower anxiety). A second stream of knowledge refers to a holistic concept of relaxing, which is supported by a new branch of science called ‘contemplative science’. ‘Contemplative science’ practices, such as mindfulness and meditation, bring relaxing effects to the body and mind, producing effects also for various well-being outcomes in children (for example, emotional regulation or executive functioning improvements). ‘Contemplative science’ studies practices of awareness (Davidson and Lutz, 2008, Greenberg and Harris, 2012; Bishop et al., 2004). Since the turn of the century, contemplative studies has emerged to focus on mindfulness and meditation, also known as contemplative practices, and their effects on humans. This field evolved around practices of awareness and bridged the empirical study of consciousness and the experiential study of of consciousness through contemplation. It is related to neuroscience and psychology and attempts to understand the effects of mental and physical training, such as mindfulness – a particular type of meditation practice – meditation in general, and yoga, on the body, brain, mind and feelings at different life stages.

The goals of contemplative science are to create new knowledge regarding human well-being and to generate new forms of human behaviours that optimize development. A key aim of contemplative science is to learn whether and how the practices of mindfulness, other types of meditation, and yoga can alleviate distress and cultivate well-being and positive human behaviours (Kabat-Zinn, 2003; Davidson and Lutz, 2008).

Given the large amount of literature on these practices, it is important to define ‘mindfulness’ and its theoretical insight. In 1979, Kabat-Zinn (2003) developed a secular mindfulness-based intervention eventually called Mindfulness-Based Stress Reduction (MBSR), an eight-week programme inspired by concepts and practices of Vipassana Buddhist meditation. According to Kabat-Zinn (2003), mindfulness is “the awareness that emerges through paying attention, on purpose, in the present moment, and nonjudgmentally to the unfolding of experience moment by moment” (p. 145). Mindfulness is also described as being present in the mind,

The research conducted by Kabat-Zinn eventually involved validation from different domains of science, including psychology, medicine, neuroscience, social sciences and education. This evidence referred to mind–body interaction in self-healing, clinical applications of meditation and mindfulness, effects of MBSR concerning anxiety, brain and immunological functions, patients with bone marrow transplants (Davidson et al., 2003; 2008), stress in different work and study environments and in prisons. The practice of mindfulness and other types of meditation has been studied deeply in recent years (Davidson and Lutz, 2008), and yet their conceptualization and measurement are still elusive today (Goetz et al., 2010; Williams and Kabat-Zinn, 2011).

Contemplative practices support a holistic concept of relaxing as they have an impact in different dimensions of life. For example, mindfulness exercises teach practitioners to continually bring their attention back to present-moment experience, noticing current thoughts, emotions, or body sensations. This exercise can produce deep relaxation and stress reduction but also develops other effects, such as better performance of executive functioning, developed attention, and emotional regulation (Wood et al., 2018; Mak et al., 2018).

Although it is not clear how relaxation or bringing attention to the present moment impacts the brain traits of children, a study of adults from Harvard University and Massachusetts General Hospital (Sevinc et al., 2018) found that both mindfulness meditation and the ‘relaxation response’ impact

the brain – and aspects of a person’s psychology – but in different ways. Mindfulness-Based Stress Reduction increases well-being, reduces anxiety and depression, and can even change the volume of key areas of the brain. The relaxation response,² on the other hand, aims at getting the body to turn off the fight-or-flight stress response and enter into a state of relaxation. Both methods have proven benefits, and the team of researchers set out to measure how each of them exerted effects on the brain. Results showed that the programmes functioned through different neural mechanisms.

4.2 Mental and physical relaxation for children and effects on well-being

This section presents empirical studies that emerged in the search by using the term ‘relaxing’ combined with other search terms. Most studies did not approach ‘relaxing’ as an intrinsic capacity itself but as a consequence of relaxation training. Studies focused mainly on methods of reducing anxiety through relaxation, including mental visualizations, relaxing effects with music, biofeedback, muscle relaxation, and yoga. Most of these studies do not treat relaxing as a skill and do not extensively analyse the effects that relaxing produces on other core capacities and well-being outcomes.

Treurnicht Naylor and colleagues (2011) conducted a systematic review of randomized control trials (RCTs) to study the effect of music on paediatric health care, emphasizing the role of music therapy and its relaxing effects for coping with pain in children (1–17 years old) who have a chronic illness. Music therapy had a significant impact on children’s psychological health, with effects on coping behaviours and reduced frequencies of behaviour problems associated with grief and distress, which can be understood as emotional and mental relaxation. Music in this study was treated as the independent variable and relaxing as a dependent variable. The studies reviewed were all focused on Western and high-income countries.

In a study conducted in the United States, Knox et al. (2011) examined the effects of an intervention based on ‘game-based relaxation training’ with psychoeducation and behavioural practice. The intervention was tested on 23 children aged 9 to 17 and used computer-based gaming technology to teach and practise relaxation. Analyses using ANCOVA showed significant differences in post-test scores of anxiety and depression measures between the intervention and control group. Findings revealed the children in the intervention group, through biofeedback-assisted relaxation training, can lower anxiety and depression symptoms. A limitation of the study relates to the sample, which was too small and largely composed of white children.

Furthermore, Srilekha et al. (2013) conducted an intervention study on muscle relaxation among boys 9–12 years old identified as having attentional deficiency and a high level of trait anxiety, randomly selected from academic institutions in India and Bangladesh. Participants were categorized into a control group, not exposed to any intervention programme, and an experimental group, which received an abbreviated version of a Progressive Muscle Relaxation Program (15 minutes a day, 3 times a week for 9 weeks). At post-intervention and follow-up (2 months) reduction in anxiety and greater attentive capacity were displayed by the experimental group. Children’s relaxing capacity contributed to the development of attention and better well-being with reduced levels of anxiety. No attempt was made to assess Indian and Bangladeshi cultural differences in the results.

2 During the relaxation response, the body moves from a state of physiological arousal, including increased heart rate and blood pressure, slowed digestive functioning, increased blood flow to the extremities, increased release of hormones like adrenaline and cortisol, preparing the body to fight, freeze, or run, to a state of physiological relaxation, in which blood pressure, heart rate, digestive functioning, and hormonal levels return to their normal state (Sevinc et al., 2018).

Larson et al. (2010) studied levels of anxiety among 177 third-grade students after relaxation training in two public elementary schools in the United States. In one school students received the training on relaxation techniques (experimental group), and at the second school students received no training (control group). Levels of anxiety were measured through the Westside test anxiety scale, breathing, and guided relaxation exercises. The relaxation intervention had a significant effect in reducing test anxiety in the experimental group compared to the control group.

In a study conducted in Germany, Lohaus and Klein-Hessling (2003) examined the effects of relaxation programmes, 'Progressive Muscle Relaxation' and 'Imagination', both presented with five and ten sessions, as well as in a standard and an intensified version. The two techniques were compared among a sample of 160 children aged 9–12 years. Measurement criteria included physiological parameters (heart rate, skin conductance, skin temperature) and self-report measurements of mood and physical well-being. The results showed short-term effects of both relaxation techniques on children's mood (enhanced calmness) and on physical well-being. However, long-term effects were null once the training was extended. One possible explanation could be the increasing motivational problems when children are required to use these relaxing techniques over longer periods. There were no significant effects of sex on the criteria used to evaluate the relaxation techniques.

Stueck and Gloeckner (2005) also conducted a study in Germany in which they evaluated the effects of training incorporating elements of yoga including breathing exercises and imagination journeys, specifically selected for children. A controlled experimental design was employed on a sample of 48 fifth-grade students. The exercising effects showed that yoga was suitable as a relaxation method for this age group. Training increased emotional balance over the long term and reduced fears, and feelings of helplessness and aggression. This means emotional relaxation and mental presence, with minimal stress, is directly connected to a relaxing condition. Sex differences were not explored in the study.

In an experimental study, Gilbert and Orlick (2002) examined the effects of the implementation of Orlick's Positive Living Skills Program on elementary school children's learning to relax, via stress control strategies and by increasing the frequency of their highlights (pleasures or meaningful experiences in one's day). Measures included the heart rate monitor (DT 1000), to assess the extent to which children learned to relax. Results of an analysis of variance (ANOVA) on pre- and post-test heart rate showed the experimental group was significantly better able to relax compared to the control group. Interviews were conducted with the experimental group following the intervention to assess the extent to which children applied intervention strategies in their daily routine.

Relaxation skills and stress control strategies were used in different situations outside the intervention sessions, specifically at school, at home, with peers, on the playground, during sport, and when children were going to sleep. Results showed that children in the experimental group significantly increased the frequency of positive things during their daily life (highlights) over the course of the study, while the control group did not. Moreover, the findings demonstrated that children have the capacity to learn positive living skills and to relax at will. Many of the children involved in the study came from diverse cultural backgrounds, including African, Asian and Middle Eastern countries, but no cultural traits were explored in the analyses.

4.3 Mindfulness, contemplative practices and age development

Research on mindfulness and contemplative practices that includes evidence of children and development is recent and rather limited (Greenberg and Harris, 2012; Zelazo and Lyons, 2012). Existing evidence shows that mindful awareness is conceived as an intrinsic, though limited, capacity of human beings that may be extended through intentional training and education toward certain end states (Roeser et al., 2013).

Through studies on adult long-term practice of meditation, Davidson and Lutz (2008) found that mindfulness and meditation can change neuronal hubs of the brain. The same study observed different responses of the brain neuronal hubs in long-term meditation practitioners compared to non-practising adults. A growing body of evidence shows that training in contemplative practices (e.g., mindfulness or meditation practices, yoga) can facilitate the development of mindful awareness in adults (Lutz et al., 2007; Jazaieri et al., 2014). An article written by a group of authors led by Richard Davidson (MLERN, 2012) reviewed scientific evidence of the induction of plastic changes in brain structure and function among adults involved in a contemplative practice. The authors stated that contemplative practices may contribute to child development, looking at the brain processes in adults, as these practices are likely to produce successful 'habits' for learning, health and well-being.

Further evidence shows that neurophysiological and psychological processes in adults, such as attention and emotion regulation, are affected by mindfulness training and are likely to mediate training-related outcomes, such as stress reduction, well-being and improved health (Teper and Inzlicht, 2013; Vago and Silbersweig, 2012). A few additional articles found that these capacities may develop in childhood and are retained during adolescence and the transition to adulthood (Roeser and Eccles, 2015; Flook et al., 2015; Greenberg and Harris, 2012; Zelazo and Lyons, 2012; MLERN, 2012).

In one study targeting children, Flook et al. (2015) defined mindfulness as a set of practices that cultivate the regulation of attention and executive functions, including working memory, response inhibition, and mental flexibility. The authors stated that mindfulness and meditation practices that bring awareness to particular attention-focusing objects, like the breath, or emotions, or external stimuli, help children engage in self-regulatory activities and improve their neural circuits in the prefrontal cortex. Indeed, the rich cortical and subcortical connections of the prefrontal cortex help children carry out new patterns of behaviour, improve their attention and motor skills, their short-term memory tasks, filtering of information, improve the working memory, planning, set shifting, flexibility, and active problem solving (Siddiqui et al., 2008, p. 5). Over time, with increasing challenge and engagement, such practices are believed to lead to improvements in awareness, attention, emotion regulation, and other dimensions that can be developed (MLERN, 2012; Zelazo and Lyons, 2012; Roeser and Eccles, 2015).

From a neuroscience and cognitive perspective contemplative practices could help children foster the development of three interrelated sets of skills in early childhood: executive function, emotion regulation and perspective-taking (Zelazo and Lyons, 2012). The authors outlined the acquisition of self-regulatory skills in early childhood and noted the importance of these skills for both social and academic success. They further provided a theoretical perspective, according to which contemplative practices can influence self-regulation, alleviate stress and increase motivation, which may influence executive functions in a dynamic and reciprocal way. Greenberg and Harris (2012) reviewed the evidence regarding the use of contemplative practices, including yoga and various meditation practices, in both clinical facilities and schools. These studies established the feasibility and the benefits of these practices among children, but few trials of meditation-based interventions with

children were conducted. There is a need to further identify practices that are appropriate for children at different stages of development. For example, some forms of sitting meditation may be impractical for younger children compared to adolescents. Alternatively, some interventions may be more successful for younger children rather than older children (Erwin and Robinson, 2016). This difference may be due to children's different and evolving attention spans, and metacognitive ability, which may prompt different outcomes. Another important aspect of research on children's development is understanding the phenomenology of mindful awareness and its manifestations in social relations and behaviour across different contexts, such as friendships, family relationships and school settings. These aspects have important methodological implications for future research involving children and adolescents (Roeser and Eccles, 2015). For instance, a meta-analysis by Greenberg and Harris (2012) noted the need for more rigorous empirical evidence of the efficacy of such practices with children.

4.4 Mindfulness and meditation interventions in schools

A number of studies looked at mindfulness-based interventions with children in schools. This section summarizes the empirical studies on interventions of preschool and school age children and their effects on well-being and other skills.

4.4.1 Preschool-age interventions

Research targeting preschool children involves ethical and methodological complexities (Eklund et al., 2017; Burke, 2010). A study by Flook et al. (2015) conducted in the USA examined the effects of a 12-week mindfulness-Kindness Curriculum (KC) on executive function, self-regulation and prosocial behaviour in a sample of 30 preschool children (aged 4 to 5 years). These self-regulating skills are assumed to be strong predictors of success throughout life but are not part of the teaching curriculum at school. The KC intervention group demonstrated better health and less selfish behaviour compared to the control group, as well as enhancements in social competence in general. Moreover, the intervention group showed small to medium effect sizes for cognitive flexibility and ability to delay gratification, but not at a level of statistical significance. One important limitation of the study was that the results indicated significant improvements only on teacher-report measures, and teachers were not blind to the intervention condition.

The development of mindfulness was associated with improvements in two broad abilities closely aligned with executive functioning skills: the regulation of attention, and an open and curious orientation toward experience (Bishop et al., 2004). Regulation of attention was directly associated with development in executive functioning (EF) skills, such as sustaining, switching, and inhibiting attention. At the same time, openness and curiosity toward experience were found to relate to EF skill development by encouraging attention and openness toward the current moment.

Wood and colleagues (2018) evaluated the effectiveness, acceptability, and feasibility of a mindfulness intervention called 'Mini-Mind,' a 12-session intervention for preschool children. They used a randomized controlled design on a sample of 27 (intervention N = 12; control N = 15) children aged 3 to 5 years. The intervention group showed small to medium effects on measures of executive functioning skills, although many coefficients did not reach statistical significance. Moreover, the 'Mini-Mind' programme was considered both feasible and acceptable by children, parents and teachers, meaning it could be a valid early childhood programme.

These results highlight the need to continue exploring the effectiveness of mindfulness programmes oriented towards preschool children, using both reliable and validated measures

4.4.2 School age interventions – primary school

Interest is growing in the use of mindfulness-based interventions (MBI) with students in school settings.

Flook et al. (2010), in a randomized control study, evaluated a school programme based on mindful awareness practices (MAPs) for 64 children aged 7–9 years. The 8-week programme comprised twice-weekly 30-minute sessions. Methods included questionnaires for teachers and parents assessing children's executive functions before and after the intervention. Those children in the control group with low executive functions showed greater improvements in behavioural regulation, metacognition, and global executive control than those without executive function difficulties. The results also pointed to improvements in children's behavioural regulation. The behavioural regulation, executive control, and metacognition help children develop attention and cognitive skills, and represent proxies related to other L4WB core capacities, such as 'noticing' (observation, attention) and 'reflecting' (metacognition, cognitive skills).

A study by Vickery and Dorjee in England (2016) investigated emotional well-being and metacognition outcomes in 71 children (intervention = 33; control = 38), aged 7–9 years, who participated in a mindfulness programme for 8 weeks taught by classroom teachers during their lessons. The authors collected data at baseline and three months after the training using self-reported questionnaires to assess emotional well-being in children. Similarly, reports from teachers and parents were collected before and after the programme to assess children's metacognition. Results showed that 76 per cent of children in the intervention group enjoyed practising mindfulness in school and experienced significant gains in emotional well-being and metacognition skills (p. 8).

In a randomized controlled study conducted in the USA, Parker et al. (2014) assessed the feasibility and effectiveness of a mindfulness education programme that targeted substance-abuse prevention for fourth and fifth grade children (9–11 years old). Both children and teachers completed self-reported questionnaires. The intervention and control groups did not differ significantly on age, sex, race or ethnicity. Results showed significant improvements in executive functioning skills for both girls and boys. At the same time, there was a significant but marginal increase in the self-control abilities of boys only. Significant reductions were found in aggression and social problems for girls and boys, as well as reduced anxiety among girls.

Schonert-Reichl and colleagues (2015) conducted a study on children's well-being after a 12-week mindfulness programme. The results revealed significant gains in executive functioning, self-reported measures of well-being and prosocial behaviour. Indeed, the RCT study demonstrated that the programme had positively influenced children's empathy skills, perspective-taking, emotional control, optimism, school self-concept, and mindfulness (p. 14). Furthermore, the programme was found to decrease self-reported symptoms of depression and aggression (p. 5). Following implementation, children were rated by peers as more prosocial and popular. They also tended to show better mathematics performance (the only subject for which grades were provided by the school) relative to children in the active control group. The authors used a great variety of measures, including self-reported questionnaires, teacher and peer reported measures, and salivary cortisol tests, to capture different aspects of wellbeing, including psychological, social, educational and cognitive outcomes.

Emerson et al. (2017) evaluated a 4-week programme of mindfulness-based activities that was delivered in a classroom of 26 children aged 6–7 years in the UK. The outcomes were assessed at four points in time (baseline, pre-, post-intervention, and follow-up) and showed mixed effects. There

were no significant changes in well-being and mindfulness among children who participated in the programme. Instead, the sustained attention and inhibition significantly increased over time. The authors discussed the need for appropriate measures of mindfulness and well-being to be developed further for this age group.

4.4.3 School age interventions – secondary schools

Huppert and colleagues (2010) employed a control trial methodology to evaluate a mindfulness intervention in Australia among 155 high school children (14–15 years old). The evaluation included measures of mindfulness, resilience and psychological well-being. The programme was well accepted by adolescents. Furthermore, there was evidence of improvement in children's well-being, specifically related to spending time outdoors.

Lau and Hue (2011) conducted a pilot control trial study among high school children in Hong Kong on the effects of a six-week mindfulness-based programme. Children aged 14–16 with low academic performance were split into intervention and control groups (total, $n = 48$). The aim of the programme was to improve children's well-being and reduce stress and depression. These outcomes were assessed for both groups at baseline and post-intervention. Additional qualitative data were used to document teachers' perspectives on children, the interventions and outcomes. The results revealed a significant decrease of depressive symptoms and an increase in 'personal growth' (treated by authors as one dimension of well-being) for the intervention group. In this pilot, the programme curriculum and content were mostly adapted from roll-out in Western contexts, not considering local Chinese cultural elements. The small sample size was one of the major limitations. Indeed, the recruitment phase saw low participation in the mindfulness training, and due to a high rate of drop out of children from the programme the sample size reduced drastically.

Johnson et al. (2017) looked at the effects of a mindfulness programme in high schools in Australia and found no improvements on measured anxiety and well-being outcomes among 555 sampled children aged 11–16 years. The same results were found in a similar RCT study previously conducted by the same group of researchers (Johnson et al., 2017). In their studies, the authors discussed the need for more age variability in the sampled population, the variation of effects according to content and length of the delivered mindfulness programme and follow-up round of evaluations to reach optimal conclusions.

4.5 Contemplative practices and well-being outcomes for children

Interventions that implement mindfulness programmes showed consistent positive effects on cognition and emotional well-being in adults and children. However, there is still a limited understanding of the neurobiological mechanisms that inform relaxing and mindfulness processes in youth that would allow for more applications of these interventions in educational settings.

According to Dunning et al. (2018), "It is assumed that enhancement of proximal skills applied by MBIs [Mindfulness-Based Interventions], such as non-judgmental attention control, may have downstream effects on more distal outcomes such as improved behaviour or reduced symptoms of psychopathology" (p. 245).

This statement confirms a general idea in recent research that mindfulness skills can be developed and enhanced through training and practice through MBIs. Consequently, lately research has focused also on MBI benefits to children and adolescents (Dunning et al., 2018).

Although empirical evidence of mindfulness programmes among young people is still emerging, there are reasons to believe that these programmes are effective in enhancing the psychological health and well-being of younger populations (Meiklejohn et al., 2012). This section presents some evidence of mindfulness interventions on child well-being by examining a number of meta-analyses and RCT evaluations.

In a meta-analysis of the efficacy of MBIs for improving the mental health and wellbeing of youth ($n = 3,666$, 8–17 years old), Dunning et al. (2018) found positive significant effects of interventions on children's outcomes, including executive functioning, attention, depression, anxiety/stress and risky behaviours. The authors identified the need for future RCTs evaluations to incorporate scaled-up trial designs to further evaluate the efficacy of MBIs in children.

In systematic review of MBIs, Mak and colleagues (2018) from the University of Queensland in Australia looked at the efficacy of interventions (i.e., mindful movements and yoga practice) on attention and executive function of children and adolescents (7 to 12 years). In the review, 13 randomized control trials met the inclusion criteria, including mindfulness-based psychological interventions ($n = 7$), *yoga* ($n = 3$), and traditional meditation techniques ($n = 2$). Only five of the 13 studies found medium to large significant effects that linked interventions with children's attention and executive function outcomes.

In a neuroscientific study conducted in the USA, Marusak et al. (2018) used multi-echo multi-band MRI to examine core neurocognitive networks during a mindfulness practice in 42 children (23 girls, 19 boys) aged 6–17 years. The aim of the study was to analyse the relationship between child mindfulness and functional neural dynamics and neurocognitive networks over time. The findings showed that mindfulness in children relates to dynamic but not static resting-state connectivity (p. 7). Notably, "more mindful children transitioned more often between brain states over the course of the scan, [and] spent overall less time in different connectivity states" (p. 8). Moreover, "the number of state transitions mediated the association between mindfulness and anxiety symptomology" (p. 8); i.e., dynamic connectivity responded to higher mindfulness and lower anxiety among children. These new insights into the potential neural mechanisms emphasized the benefits of mindfulness characteristics for children's psychological health. Moreover, the study showed how neural mechanisms work in children during a mindfulness practice.

An RCT study conducted in the USA by Semple et al. (2010) analysed a mindfulness-based cognitive therapy for children (MBCT-C), a programme used to increase the social-emotional resiliency among children developing mindful attention. The programme targeted 25 children aged 9–13 years from a low socioeconomic background. The intervention explored mainly the link between stable emotions and attention. Results indicated positive effects in the intervention group, even three months after the intervention. Furthermore, a significant positive relationship was found between attention problems and behaviour problems. Anxiety symptoms and behaviour problems were significantly reduced among children who reported elevated levels of anxiety before the intervention. No significant differences were found between girls and boys.

These findings show that a mindful state among children can help develop their attention, i.e., the capacity to notice as well as their overall psychological well-being.

Quach et al. (2016) studied the effectiveness of a mindfulness intervention focused on meditation and yoga interventions among adolescents and its effects on anxiety, stress and working memory capacity. The RCT aimed at analysing the 'working memory capacity' of children, introducing interventions of mindfulness meditation and hatha yoga among 198 adolescents, aged 12 to 17 years from a public school in the southwestern USA. Participants were divided in groups that received mindfulness, yoga,

or no intervention. Self-reported measures of perceived stress and anxiety were collected before and after the intervention. Children in the mindfulness condition showed significant enhancement in their working memory, but not children in the hatha yoga group.

Overall, articles presented in this section showed how at least some relaxing interventions based on contemplative practices produce stress reduction effects and general psychological well-being. Some studies also analysed the positive effects that these practices produced on concentration skills and executive functioning among children (Mak et al., 2018; Dunning et al., 2018).

4.6 Relaxing and contemplative practices in teachers and benefits for children

Davidson and colleagues (2012) reviewed the scientific evidence of the induction of plastic changes in brain structure and functions among adults and adept practitioners who engage in contemplative practice. The same authors drew on this knowledge to propose a research agenda that explores the benefits of contemplative practices for the professional development of teachers and the advancement of academic and social-emotional learning for their students.

The relationship between mindfulness, attention and well-being is well established for adults (Grant, 2017). In education, mindfulness programmes often focus on teaching children ways to cope with attentional and emotional difficulties. The literature shows that mindfulness and contemplative practices have positive effects on teachers, and that being a mindful teacher positively affects the classroom environment (Jennings et al., 2013; Davis, 2012). The nature of mindfulness and teaching is complex; it involves adults and children and their relationships and proves highly subjective. Helping students expand their awareness beyond themselves, focus on their attention, visualize the reality, and to be kind to one another are key aspects that a mindful teacher takes on as responsibilities (Harris, 2017).

Mindfulness may help teachers create a vision of education that meets the needs of all students, including those with educational and behavioural needs (Albrecht, 2018). This applies particularly to gifted students who are often disengaged and perform well below their potential (Sisk, 2017). Through mindfulness practices, teachers may build high levels of social and emotional competence and improve their dialectical, non-judgmental, and self-regulating qualities (Grant, 2017). These competences in teachers may serve as examples for children and in turn enhance children's well-being and the overall education environment (Bliss, 2017).

A study by Siegel (2014) showed that teachers and physicians who received mindfulness training demonstrated enhanced empathy and reduced burnout. Furthermore, Siegel identified two types of mindfulness traits among teachers: intrapersonal and interpersonal. Intrapersonal mindfulness is defined as being in the present moment with non-judgmental awareness of internal processes including thoughts, feelings and bodily sensations. Interpersonal mindfulness is how people relate to others and includes listening and giving one's full attention to others. By applying mindfulness to their daily work, teachers may use mindfulness practices to promote valuable cognitive skills, including perspective-taking, creative thinking and innovative problem solving. In addition, mindfulness supports teachers as they focus on positive emotions and especially when they connect with children, which subsequently produces a positive classroom environment (Sisk, 2017). Furthermore, teaching mindfulness practices in early childhood classrooms allows young children to be creative, live in the present, and develop positive and winning attitudes for the future (Meiklejohn et al., 2012). Mindfulness approaches have also been successfully applied as a therapeutic method with young people; hence, they could also be used in educational psychology involving teachers and parents (Davis, 2012).

A study conducted in the USA by Garner et al. (2018) analysed the increase of emotional competence in teachers ($n = 87$) through a mindfulness-based intervention. The intervention group participated in a training in breathing awareness meditation and social-emotional learning while the control group attended only the training in breathing awareness meditation. The breathing awareness meditation consisted in focusing on the diaphragm while breathing, relaxing and holding the breath at different moments of the breath cycle. Findings showed improvements in the emotional competences of teachers in the intervention group, especially among those with preschool teaching experience.

Other examples of successful applications of mindfulness interventions in education settings are the 'cultivating awareness and resilience in education' (CARE) programme and the Stress management and relaxation techniques (SMART) programme. The CARE programme is based on three components: (1) emotional skills instruction, (2) stress reduction practices, and (3) listening and compassion exercises. Evaluations of the CARE programme indicate that participating teachers experienced improvements in well-being, efficacy, and mindfulness traits compared to the control group (Jennings et al., 2013).

The randomized controlled evaluation of the SMART programme involved two field trials that included 113 elementary and secondary school teachers in Canada and the United States (Roeser et al., 2013). The teachers were randomly assigned to receive SMART training or a wait-list control group. Data collected immediately after the training program and at a three months follow-up found that 87 per cent of teachers completed the programme and reported that they found it helpful. Compared to the control group, the intervention group showed improved mindfulness, focused attention, working memory, and self-compassion (p. 9), as well as reduced occupational stress and burnout (p. 11).

These findings show how relaxing interventions based on contemplative practices have stress reduction effects, increase emotional and compassion abilities and improve general psychological well-being for teachers. These effects belong to the cognitive and emotional dimensions. Again, in this body of literature the physical and spiritual dimensions are not directly analysed or well represented. However, there is some evidence of how the skills of 'relaxing' can be developed through different practices that bring beneficial effects under different dimensions and throughout the body (Garner et al., 2018; Roeser et al., 2013).

In general, studies in this literature review explore the benefits of contemplative practices on teachers' life, but there is poor direct evidence of how these benefits can be extended to children in school settings, though it may be inferred that improving teacher well-being can provide a positive classroom environment.

4.7 Mindfulness and spirituality

No studies included in this review showed any link with spirituality. To fill this gap, as noted, the search terms of relaxing and its proxies were used across a list of spirituality articles provided by external experts without substantive results, except for one empirical study that passed the inclusion criteria. Benson et al. (2012) built a (non-religious) paradigm of spirituality in youth (6,725 young people, 12–25 years), which consisted of four elements, one of which was mindfulness (in the sense of awareness), which was studied as one of the developmental processes. Results suggested that spiritual development is present in youth across all countries and can be developed and expressed even without any religious engagement or belief.

5. RELAXING AND ITS PHYSICAL, EMOTIONAL, MENTAL AND SPIRITUAL DIMENSIONS

The studies included in this review were categorized using the matrix of L4WB's four perspectives (see *Table 4*). Most fell within the mental and physical categories towards the tangible and middle part of the continuum, such as studies on how relaxation practices and mindfulness interventions develop throughout childhood and influence well-being.

By considering the content and process levels of the continuum together, most studies can be grouped within the mental category, exploring the presence of 'relaxing' through the relaxation and mindfulness practices. Six studies were instead linked to the emotional domain by exploring the presence and role of feelings and relationships in influencing well-being.

The results show that relaxing demonstrates clear sensory characteristics (listening, experiencing, breathing) that can be placed under the physical dimension of the L4WB theoretical framework, and cognitive characteristics (thinking control, envisioning, attention) which are grouped within the mental category.

The emotional dimension is, however, less supported by the literature identified in this review, and expressed mostly as an effect of bodily and mental relaxing (emotional calmness). The spiritual dimension is not supported, with the exception of a single study (Benson et al., 2012). The study focused on spirituality among youth, in which mindfulness was set as one component of the spiritual paradigm proposed by the authors.

Twelve articles were categorized in more than one dimension, due to the fact that most of the studies were mindfulness interventions which showed components of mental, emotional and physical dimensions at the same time, while it was not possible to categorize a further 11 articles (either theoretical or reviews) into any of the categories.

Many of the studies which were categorized dealt with mindfulness interventions in children, which generally include both mental and physical exercises (rarely emotional).

Table 4: All studies in the Matrix of Four Perspectives

	<i>content</i> <i>'what'</i>	<i>process</i> <i>'how'</i>	SPIRITUAL (S)
			<i>intention</i> <i>'why'</i>
MENTAL (M)	1 study ³	16 studies ⁴	1 study ⁵
EMOTIONAL (E)	0 studies	8 studies ⁶	
PHYSICAL (P)	0 studies	16 studies ⁷	

Note. 11 studies are not included.⁸

3 The one study placed at the Mental (M) content level is: Marusak et al. (2018).

4 The 16 studies placed at the Mental (M) process level are: Albrecht (2018); Lohaus and Klein-Hessling (2003); Stueck and Gloeckner (2005); Vickery and Dorjee (2016); Wood et al. (2018); Flook et al. (2010); Parker et al. (2014); Emerson et al. (2017); Huppert and Johnson (2010), Lau and Hue, (2011), Johnson et al. (2017), Dunning et al. (2018), Quach et al. (2016), Roeser et al. (2013); Schonert Reichl et al. (2015); Semple et al. (2010); Gilbert and Orlick (2002).

5 The one study placed at the Spiritual (S) level is: Benson et al. (2012).

6 The eight studies placed at the Emotional (E) process level are: Parker et al. (2014); Flook et al. (2015); Emerson et al. (2017); Schonert Reichl et al. (2015); Huppert and Johnson (2010); Semple et al. (2010); Siegel (2014); Jennings et al. (2013).

7 The 16 studies placed at the Physical (P) process level are: Albrecht (2018); Gregoski et al. (2011); Semple et al. (2010); Schonert Reichl et al. (2015); Knox et al. (2011); Roeser et al. (2013); Johnson et al. (2017); Larson et al. (2010); Parker et al. (2014); Srilekha et al. (2013); Emerson et al. (2017); Lohaus and Klein-Hessling (2003); Stueck and Gloeckner (2005); Mak et al. (2018); Quach et al. (2016); Garner et al. (2018).

8 The 11 studies not included in the matrix are: Bliss (2017); Davis (2012); Eklund et al. (2017); Erwin and Robinson (2016); Grant (2017), Greenberg and Harris (2012); Felver et al. (2015); Meiklejohn et al. (2012); Roeser and Eccles (2015); Sisk (2017); Zelazo and Lyons (2021).

6. DISCUSSION

This study maps the existing evidence of relaxing, as covered by the empirical and theoretical literature. Relaxing can be understood as a skill for stress reduction that includes psychological (reduction in anxiety and emotional calmness) and physiological aspects (stable heart rates, muscle relaxation, activation of specific brain networks, blood pressure). Based on the search in databases using predefined keywords that included the word ‘relaxing’, only seven studies emerged that looked at mental and physical relaxing interventions on children, mainly through effects on anxiety and depression.

Rather, empirical research is focused on analysing the effects of mindfulness and contemplative practices on children to achieve relaxing outcomes through stress reduction practices and techniques. Indeed, relaxing is often understood as a side-effect of contemplative practices, as it is often the outcome to be reached during mindfulness interventions or meditation in general. As such, this study and much of the available literature seems to suggest that mindfulness and meditation are processes to teach relaxing skills or attentional focus among children.

When considering relaxing in combination with children and well-being, studies commonly used mindfulness practices to achieve positive well-being and relaxation. But the practice of mindfulness itself implies the voluntary action of bringing attention to an object or a thought. This exercise produces several effects; for example, development of attention or improvements in executive functioning and cognitive skills, with lower depression and anxiety among children and significant adults in children’s lives (Bishop et al. 2014; Mak et al., 2018; Schonert-Reichl et al., 2015; Jennings et al., 2013; Garner et al., 2018).

Furthermore, the literature identified mindfulness practices as having positive effects for early child development outcomes (Flook et al., 2015; Wood, 2018). The well-being effects produced by contemplative practices stimulate mental and emotional resources of children, by allowing a better emotional regulation and empathy, and better executive functioning and working memory (Mak et al., 2018; Dunning et al., 2018; Quach et al. 2016). Only a few articles identified ‘minimal positive effects’ associated with contemplative practices, especially among adolescents (Lau and Hue, 2011; Johnson et al., 2017). Minimal effects among adolescents are associated with short durations of mindfulness interventions or with poor targeting of these programmes. More evidence is needed of the scale and reliability of these programmes.

An overarching finding from reviewed studies is that all of them evaluated the effects of relaxing and mindfulness interventions on children’s outcomes positively. However, this finding needs a cautionary approach since each article had different types of interventions and measured outcomes differently. Moreover, there is hardly any comparability across country contexts and most interventions targeted a limited number of children and none were nationally representative. Furthermore, most of the studies are early-stage evaluations, with a narrow use of RCT methodology, as many are case studies, or non-randomized trials. Although helpful in identifying some effects linked to efficacy and impact, such early-stage studies and quasi-experimental research should be regarded as preliminary evidence of randomized, full controlled trial (RCT) evaluations and further studies

Nevertheless, the agreement across studies is that contemplative interventions improved children’s skills and well-being, including, but not limited to, focus and attention, self-regulation and executive functioning, social awareness, emotional, psychological and physical health. Studies also emphasized

that childhood may be a particularly opportune or fruitful period during which to practise mindfulness, as self-regulation and executive functioning skills develop markedly during this period of development.

Furthermore, schools are appropriate environments in which mindfulness interventions can be implemented. The implementation of these programmes in schools may prevent depression and improve the mental health and well-being of schoolchildren (Jennings et al., 2013). School environments provide a safe setting for children, and these types of programmes can be easy to implement, involving benefits also for teachers. Thinking of future research, schools also present a good study environment to randomize children to implement rigorous RCTs. At the same time, such studies exclude many vulnerable groups of children in out-of-school contexts, meaning that informal education contexts should also be explored as a focus in future research.

Notably, mindful interventions do not have a clear life course perspective when targeting children. Specifically, the reviewed evidence of interventions is mostly based on elementary schoolchildren, while evidence of early and late adolescence is less available. Across studies, the most frequent age studied were 6–7, 7–9 and 9–11 years, targeting children in primary schools. Only two studies included preschool children, 3–5 years old (Flook et al., 2015; Huppert et al., 2010). Regarding evidence of adolescents, only 4 studies included children aged 12–16 years (Huppert and Johnson, 2010; Lau and Hue, 2011; Johnson et al., 2017; Quach et al., 2016). Moreover, when studies targeted adolescent children, many results were not statistically significant, which may reflect difficulties in the implementation of interventions among adolescents. The minimal effects of interventions in late adolescence may also be associated with the short duration of the mindfulness interventions (Johnson et al., 2017) or to poor programme targeting (Lau and Hue, 2011). In fact, for different age groups, different relaxing interventions should be used that can adapt to the different cognitive and emotional traits (evolving capacities) across ages.

Moreover, the available evidence does not include a full developmental perspective of interventions. Studies employed different well-being outcomes and methodological tools to evaluate impact, which impedes comparisons across developmental outcomes and contexts.

Samples of the reviewed studies were generally balanced in terms of sex, although sex differences were not routinely analysed or deemed relevant. Only in one study by Parker and colleagues (2014) showed a slight sex difference: reduced anxiety among girls and a marginally significant increase in self-control abilities in boys.

Studies were mostly set in Western and high-income countries, apart from two studies, one in India and Bangladesh (Srilekha et al., 2013) and one in Hong Kong (Lau and Hue, 2011). The latter study showed the limitation of using a Western-based mindfulness intervention on Chinese adolescents, as participation was low ($n = 27$). The authors suggested that cultural context had to be considered for future studies. In general, future work should examine relaxing capacity and related practices with diverse populations in terms of cultural backgrounds, geographic location (including middle and low-income countries), socioeconomic status and other demographic variables.

Apart from these limitations, evidence from available literature shows that relaxing and related proxies improve the physical, emotional and mental development of children. For instance, studies show that relaxing and contemplative practices have positive effects on depression, anxiety, cognitive and executive functioning, emotional regulation and empathy. These effects reflect the mental and emotional dimensions of the core capacities as described by L4WB framework. The 'relaxing' interventions were also found to improve children's physical health, leading to better blood pressure

and lower heart rates, although the physical effects were less analysed across studies. The spiritual dimension of 'relaxing', according to the L4WB framework, was not represented in reviewed studies, with the exception of one study (Benson et al., 2012). Nevertheless, relaxing and contemplative practices often take inspiration from techniques embedded in Asian spiritual traditions (Davidson and Lutz, 2008). At the same time, these practices are thought to be linked to unique perspectives, worldviews and contexts (Davidson and Kaszniak, 2015). There is no single 'correct' or 'pure' way to implement these practices. They do, however, indicate that cultural, religious and philosophical contexts may be important catalysts to consider when conducting research, since the perspective that informs these practices may play an important role in the way they affect an individual. The inclusion of a 'transcendent' or 'spiritual' perspective on relaxing and contemplative practices, although challenging, could be an interesting area of scientific investigation, particularly considering the diverse contexts and stressors that children grow up with. One might, for instance, investigate the motivations that prompt people to practise yoga, meditation or mindfulness by examining the effect of practising with a motivation of religious scope for some people versus a motivation for one's own healing or simply for stress reduction. This may inform whether these motivations influence the impact of these practices and capacity to conduct them. Indeed, building on a theoretical discussion that incorporates transcendent dimensions of relaxing in children is even more challenging than for adults, as motivations may not be so clear and often these programmes or activities are not practised intentionally by children. Moreover, practising these programmes may counter their parents' plans for their children's religious instruction.

One aim of this study was to look at the development of relaxing as a core capacity among significant adults in children's lives. The literature review produced evidence of the effects of relaxing interventions on adults working with children, most notably teachers in schools. In general, relaxing and mindfulness interventions are beneficial to teachers' emotional and professional functioning but there is little evidence of how these benefits in adults extend to children in their care.

6.1 Complementarity with other core capacities

Another focus of this study was to capture the complementarity and linking of relaxing with other core capacities. The literature rarely included a focus on this complementarity, even if some relationships can be extracted informally from evaluations. Evidence shows a rather poor complementarity of relaxing practice with other core capacities, as experimental studies mostly measure psychological effects or behavioural effects such as the level of anxiety, depression, social behaviour and emotions. However, when a linkage can be observed through proxies, effects of relaxing on 'noticing' (observing) were found in six studies through increased attention while effects on 'reflecting' were found in six other studies through cognitive control, self-regulation and personal growth. Furthermore, relaxing practices produced effects on the development of 'empathy' in two studies, through increased prosocial behaviour and compassion for others. More evidence is needed to further explain the link between relaxing and other capacities or skills among children.

6.2 Limitations

This study is not without limitations. One limitation relates to the search of studies documenting the empirical and theoretical evidence of the relaxing capacity among children. The search involving the exact word ‘relaxing’ did not produce many studies relevant for the review. Using proxy keywords such as ‘mindfulness’ and ‘meditation’ was helpful to retain enough studies but not all may relate exactly to the relaxing concept of the L4WB framework. Thus, the evidence may have combined research on relaxing, mindfulness and meditation in relation to child well-being. This produces several reflections: (1) ‘relaxing’ is not an established keyword in domains measuring skills or capacities among children; (2) the empirical evidence of relaxing as a core capacity or life skill does not sufficiently cover children or significant adults in children’s life; (3) mindfulness and meditation capture variations of relaxing in empirical work and they are studied predominantly as practices to reduce stress and improve relaxation in currently available empirical research; and 4) most studies are performed within the medical paradigm, especially by psychology and neuroscience.

Another limitation was that no study included objective measurements of children’s school performance outcomes, such as student achievement, grades, or office discipline referrals. Finally, studies lack similarities in the methodological tools used to evaluate interventions, enrolled samples and measured outcomes. This leads to difficulties in comparing the true effects of relaxation on well-being.

6.3 Implications for practice and future research

The implication of using evidence-based studies on relaxing and mindfulness practices warrants further discussion. Many studies on children use relaxing and mindfulness interventions as relaxation exercises of some kind. For example, many studies apply the Mindfulness-Based Stress Reduction programme to target stress reduction among children, as relaxation is one of the effects of the mindfulness training. But evidence shows that mindfulness-based interventions are not only about physical and mental relaxation. Some of the effects that these practices produce in children are improved mood, emotional regulation, empathy, working memory, attention and executive functioning. These effects relate to mindfulness meditation, i.e., the intention to place non-judgmental attention on any object of awareness, experiencing the present moment. In doing so, evidence shows effects and stimulation of areas of the brain that influence the executive functioning, the cognitive skills and emotional regulation of children. Evidence relates these effects to the mindful practice of applying intentional attention, while it is not clear yet how and in which terms the state of relaxation brings to these effects. Bodily relaxation practices (i.e., muscle relaxation), which do not use mindfulness or meditation, are less explored in scientific literature and there is limited evidence that they produce positive physical and psychological outcomes. As such, the core capacity involving relaxing could engage also with other activities and practices beyond mindfulness and meditation, such as listening to music, singing, playing or doing sport. However, no consistent studies were found on these activities involving children. Future evidence-based interventions targeting relaxing would do well to include a broader selection of all practices in which this core capacity may relate to children.

In conclusion, there is a need to map the complexity of relaxing and its direct effects to better capture it as a core capacity in children and youth. As most scientific studies focus on mindfulness and contemplative interventions as practices to diminish stress and improve well-being among children, there is a gap regarding relaxation itself and other practices that could foster it. Empirical studies are scarce and, in most cases, do not treat relaxing as a capacity or skill but as an effect of a response

to a relaxation programme or a contemplative practice of some kind. Notably, there is a gap in understanding the real implications and particular traits of the 'state of relaxation' in children and its related effects.

This review has suggested that the working definition of 'relaxing' adopted is not entirely supported by evidence, especially regarding L4WB's four well-being dimensions (mental, physical, emotional and spiritual). Indeed, L4WB's holistic overview of relaxing gives a lot of space for different interpretations, but without an operational definition it is difficult to measure. As such, the 'relaxing' construct might need supplementary theoretical development, unpacking and more operational/ practice-orientated definitions in order to guide further investigation. Nevertheless, 'relaxing' (and its proxy concepts of mindfulness, meditation) can be helpfully considered a core capacity according to the L4WB framework because 1) it can be developed through training and practice; 2) it can impact positively on children's lives through the reinforcement of cognitive, personal and interpersonal skills (e.g., improvements in executive functioning and empathy); and 3) it enables children to cope effectively with stress by improving their well-being.

Accordingly, future studies need to develop appropriate qualitative and quantitative measurements, using larger samples, to capture exclusively the effects of relaxing and its complexity when it comes to children. This means that future research should focus more on large-scale interventions with the same programme characteristics for targeted age groups, to compare and analyse data results, using the same methodology. Moreover, more qualitative and participatory research in this area (to hear children's voices) are needed.

Also, more research is needed to understand the relaxing practices surrounding adults working with children and those affect children.

REFERENCES

- Albrecht, N. J., 'Teachers Teaching Mindfulness with Children: Being a mindful role model', *Australian Journal of Teacher Education*, vol. 43, no. 10, 2018, pp. 1–23. <https://doi.org/10.14221/ajte.2018v43.n10.1>
- Benson P. L., P. C. Scales, A. K. Syvertsen and E. C. Roehlkepartain, 'Is Youth Spiritual Development a Universal Developmental Process? An international exploration', *The Journal of Positive Psychology: Dedicated to furthering research and promoting good practice*, vol. 7, no. 6, 2012, pp. 453–470. <https://doi.org/10.1080/17439760.2012.732102>
- Bishop, S. R., M. Lau, S. Shapiro, L. Carlson, N. D. Anderson, J. Carmody, ... G. Devins, 'Mindfulness: A proposed operational definition', *Clinical Psychology: Science and Practice*, vol. 11, 2004, pp. 230–241. <https://doi.org/10.1093/clipsy.bph077>
- Bliss, S. A., 'Exploring "Shunyata" (Emptiness) and the Cultivation of Mindfulness Practices: Educators Finding Their Zero-Point Balance', *Childhood Education*, vol. 93, no. 2, 2017, pp. 114–118. <https://doi.org/10.1080/00094056.2017.1300489>
- Burke, C. A., 'Mindfulness-Based Approaches with Children and Adolescents: A Preliminary Review of Current Research in an Emergent Field', *Journal of Child and Family Studies*, vol. 19, no. 2, 2010, pp. 133–144. <https://doi.org/10.1007/s10826-009-9282-x>
- Davidson, R. J., and A. W. Kaszniak, 'Conceptual and methodological issues in research on mindfulness and meditation', *The American Psychologist*, vol. 70, no. 7, 2015, pp. 581–592. <https://doi.org/10.1037/a0039512>
- Davidson, R. J., and A. Lutz, 'Buddha's brain: Neuroplasticity and meditation', *Signal Processing Magazine, IEEE*, vol. 25, 2008. <https://doi.org/10.1109/msp.2008.4431873>
- Davidson, R. J., J. Kabat-Zinn, J. Schumacher, M. Rosenkranz, D. Muller, S. F. Santorelli, F. Urbanowski, A. Harrington, K. Bonus, and J. F. Sheridan, 'Alterations in brain and immune function produced by mindfulness meditation', *Psychosomatic medicine*, vol. 65, no. 4, 2003, pp. 564–570. <https://doi.org/10.1097/01.psy.0000077505.67574.e3>
- Davis, T. S., 'Mindfulness-Based Approaches and their potential for educational psychology practice', *Educational Psychology in Practice*, vol. 28, no. 1, 2012, pp. 31–46. <https://doi.org/10.1080/02667363.2011.639348>
- Dunning, D. L., K. Griffiths, W. Kuyken, C. Crane, L. Foulkes, J. Parker, and T. Dalgleish, 'Research Review: The effects of mindfulness-based interventions on cognition and mental health in children and adolescents – a meta-analysis of randomized controlled trials', *The Journal of Child Psychology and Psychiatry*, vol. 60, no. 3, 2018, pp. 244–258. <https://doi.org/10.1111/jcpp.12980>
- Eklund, K., M. O'Malley, and L. Meyer, 'Gauging Mindfulness in Children and Youth: School-Based Applications', *Psychology in the Schools*, vol. 54, no. 1, 2017, pp. 101–114.
- Emerson, Lisa-Marie, G. Rowse, and J. Sills, 'Developing a Mindfulness-Based Program for Infant Schools: Feasibility, Acceptability, and Initial Effects', *Journal of Research in Childhood Education*, vol. 31, no. 4, 2017, pp. 465–477. <https://doi.org/10.1111/jcpp.12980>
- Erwin, E. J., and K. A. Robinson, 'The joy of being: making way for young children's natural mindfulness', *Early Child Development and Care*, vol. 186, no. 2, 2016, pp. 268–286. <https://doi.org/10.1080/03004430.2015.1029468>
- Felver, J. C., C. E. Celis-de Hoyos, K. Tezanos et al., 'A Systematic Review of Mindfulness-Based Interventions for Youth in School Settings', *Mindfulness*, vol. 7, 2015, pp. 34–45. <https://doi.org/10.1007/s12671-015-0389-4>
- Flook, L., S. B. Goldberg, L. Pinger, and R. J. Davidson, 'Promoting prosocial behavior and self-regulatory skills in preschool children through a mindfulness-based kindness curriculum', *Developmental Psychology*, vol. 51, no. 1, 2015, pp. 44–51. <https://doi.org/10.1037/a0038256>

- Flook, L., S. L. Smalley, M. J. Kitil, B. M. Galla, S. Kaiser-Greenland, J. Locke, E. Ishijima, and C. Kasari, 'Effects of Mindful Awareness Practices on Executive Functions in Elementary School Children', *Journal of Applied School Psychology*, vol. 26, no. 1, 2010, pp. 70–95. <https://doi.org/10.1080/15377900903379125>
- Garner, P. W., S. L. Bender, and M. Fedor, 'Mindfulness-Based SEL Programming to Increase Preservice Teachers' Mindfulness and Emotional Competence', *Psychology in the Schools*, vol. 55, no. 4, 2018, pp. 377–390. <https://doi.org/10.1002/pits.22114>
- Gilbert, J., and T. Orlick, 'Teaching Skills for Stress Control and Positive Thinking to Elementary School Children', *Journal of Excellence*, vol. 7, 2002.
- Goetz, J. L., D. Keltner, and E. Simon-Thomas, 'Compassion: An evolutionary analysis and empirical review', *Psychological Bulletin*, vol. 136, 2010, pp. 351–374. <http://dx.doi.org/10.1037/a0018807>
- Gordon, J., and L. O'Toole, 'Learning for well-being: creativity and inner diversity', *Cambridge Journal of Education*, vol. 45, no. 3, 2015, pp. 333–346. <https://doi.org/10.1080/0305764X.2014.904275>
- Grant, K. C., 'From Teaching to Being: The Qualities of a Mindful Teacher', *Childhood Education*, vol. 93, no. 2, 2017, pp. 147–152. [doi: 10.1080/00094056.2017.1300493](https://doi.org/10.1080/00094056.2017.1300493)
- Greenberg, M. T., and A. R. Harris, 'Nurturing Mindfulness in Children and Youth: Current State of Research', *Child Development Perspectives*, vol. 6, no. 2, 2012, pp. 161–166. <https://doi.org/10.1111/j.1750-8606.2011.00215.x>
- Gregoski, M. J., V. A. Barnes, M. S. Tingen, G. A. Harshfield, and F. A. Treiber, 'Breathing Awareness Meditation and LifeSkills Training Programs Influence Upon Ambulatory Blood Pressure and Sodium Excretion Among African American Adolescents', *Journal of Adolescent Health*, vol. 48, no. 1, 2011, pp. 59–64. <https://doi.org/10.1016/J.JADOHEALTH.2010.05.019>
- Huppert, F. A., and D. M. Johnson, 'A controlled trial of mindfulness training in schools: The importance of practice for an impact on well-being', *The Journal of Positive Psychology*, vol. 5, no. 4, 2010, pp. 264–274. <https://doi.org/10.1080/17439761003794148>
- Jazaieri, H., K. McGonigal, T. Jinpa, J. R. Doty, J. J. Gross, and P. R. Goldin, 'A randomized controlled trial of compassion cultivation training: Effects on mindfulness, affect, and emotion regulation', *Motivation and Emotion*, vol. 38, 2014, pp. 23–35.
- Jennings, P., J. Frank, I. K. Snowberg et al., 'Improving classroom learning environments by cultivating awareness and resilience in education (CARE): results of a randomized controlled trial', *School Psychology Quarterly*, vol. 28, 2013, pp. 374–390.
- Johnson, C., C. Burke, S. Brinkman, and T. Wade, 'A randomized controlled evaluation of a secondary school mindfulness program for early adolescents: Do we have the recipe right yet?', *Behaviour Research and Therapy*, vol. 99, 2017, pp. 37–46. <https://doi.org/10.1016/j.brat.2017.09.001>
- Kabat-Zinn, J., 'Mindfulness-Based Interventions in Context: Past, Present, and Future', *Clinical Psychology: Science and Practice*, vol. 10, no. 2, 2003, pp. 144–156. <https://doi.org/10.1093/clipsy.bpg016>
- Knox, M., J. Lentini, T. S. Cummings, A. McGrady, K. Whearty, and L. Sancrant, 'Game-based biofeedback for paediatric anxiety and depression', *Mental Health in Family Medicine*, vol. 8, no. 3, 2011, pp. 195–203.
- Larson, H. A., M. K. El Ramahi, S. R. Conn, L. A. Estes, and A. B. Ghibellini, 'Reducing Test Anxiety Among Third Grade Students Through the Implementation of Relaxation Techniques', *Journal of School Counselling*, vol. 8, no. 19, 2010.
- Lau, N., Hue, 'Preliminary outcomes of a mindfulness-based programme for Hong Kong adolescents in schools: well-being, stress and depressive symptoms', *International Journal of Children's Spirituality*, vol. 4, no., 2011, pp. 315–330, <https://doi.org/10.1080/1364436X.2011.639747>
- Learning for Well-Being Foundation, *Brief Statements on Core Capacities*, 2019, pp. pp. 1–7.

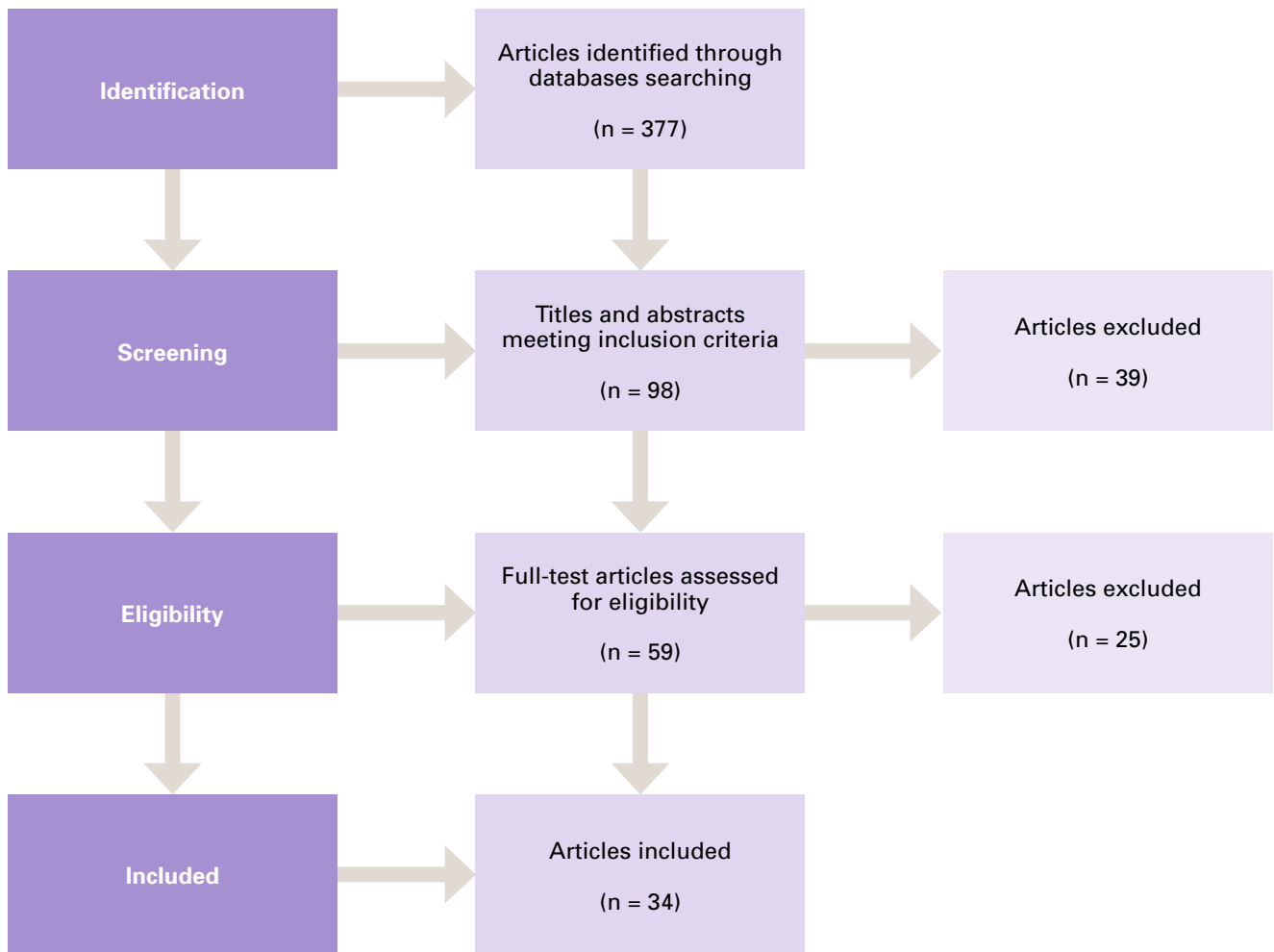
- Lohaus, A., and J. Klein-Hessling, 'Relaxation in Children: Effects of Extended and Intensified Training', *Psychology & Health*, vol. 18, no. 2, 2003, pp. 237–249. <https://doi.org/10.1080/0887044021000057257>
- Lutz, A., J. D. Dunne, and R. J. Davidson, 'Meditation and the neuroscience of consciousness', in P. Zelazo, M. Moscovitch, and E. Thompson (Eds.), *Cambridge Handbook of Consciousness*, New York: Cambridge University Press, 2007, pp. 499–552. <https://doi.org/10.1017/CBO9780511816789.020>
- Mak, C., Whittingham, K., Cunnington, R., and Boyd, R. N., 'Efficacy of Mindfulness-Based Interventions for Attention and Executive Function in Children and Adolescents – a Systematic Review', *Mindfulness*, vol. 9, no. 1, 2018, pp. 59–78. <https://doi.org/10.1007/s12671-017-0770-6>
- Marusak, H. A., F. Elrahal, C. A. Peters, P. Kundu, M. V. Lombardo, V. D. Calhoun, K. G. Elimelech, E. K. Goldberg, C. Cohen, J. W. Taub, and C. A. Rabinak, 'Mindfulness and dynamic functional neural connectivity in children and adolescents', *Behavioural Brain Research*, vol. 336, 2018, pp. 211–218. <https://doi.org/10.1016/j.bbr.2017.09.010>
- Meiklejohn, J., C. Phillips, M. L. Freedman, et al., 'Integrating Mindfulness Training into K-12 Education: Fostering the Resilience of Teachers and Students', *Mindfulness*, vol. 3, 2012, pp. 291–307. <https://doi.org/10.1007/s12671-012-0094-5>
- Mind and Life Education Research Network (MLERN), 'Contemplative Practices and Mental Training: Prospects for American Education', *Child development perspectives*, vol. 6, no. 2, 2012, pp.146–153. <https://doi.org/10.1111/j.1750-8606.2012.00240.x>
- O'Toole, L., 'Well-being as wholeness: The Perspective, Process, and Practice of Learning for Well-being', in M. Matthes, L. Pulkkinen, L. M. Pinto, and C. Clouder (Eds.), *Improving the Quality of Childhood in Europe*, 2014, pp. 22–35.
- O'Toole, L., 'Cultivating Capacities: a Description of the Learning for Well-Being Approach To Core Practices', in M. Matthes, L. Pulkkinen, B. Heys, C. Clouder, and L. M. Pinto (Eds.), *Improving the Quality of Childhood in Europe, Volume 6*, 2016, pp. 14–29.
- Parker, A. E., J. B. Kupersmidt, E. T. Mathis, M. Scull, and C. Sims, 'The Impact of Mindfulness Education on Elementary School Students: Evaluation of the "Master Mind" Program', *Advances in School Mental Health Promotion*, vol. 7, no. 3, 2014, pp. 184–204. <https://doi.org/10.1080/1754730X.2014.916497>
- Quach, D., K. E. Jastrowski Mano, and K. Alexander, 'A Randomized Controlled Trial Examining the Effect of Mindfulness Meditation on Working Memory Capacity in Adolescents', *Journal of Adolescent Health*, vol. 58, no. 5, 2016, pp. 489–496. <https://doi.org/10.1016/J.JADOHEALTH.2015.09.024>
- Roeser, R. W., and J. S. Eccles, 'Mindfulness and compassion in human development: Introduction to the special section', *Developmental Psychology*, vol. 51, no. 1, 2015, pp. 1–6. <https://doi.org/10.1037/a0038453>
- Roeser, R. W., K. A. Schonert-Reichl, A. Jha, M. Cullen, L. Wallace, R. Wilensky, E. Oberle, K. Thomson, C. Taylor, and J. Harrison, 'Mindfulness training and reductions in teacher stress and burnout: Results from two randomized, waitlist-control field trials', *Journal of Educational Psychology*, vol. 105, no. 3, 2013, pp. 787–804. <https://doi.org/10.1037/a0032093>
- Schonert-Reichl, K. A., E. Oberle, M. S. Lawlor, D. Abbott, K. Thomson, T. F. Oberlander, and A. Diamond, 'Enhancing cognitive and social-emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial', *Developmental Psychology*, vol. 51, no. 1, 2015, pp. 52–66. <https://doi.org/10.1037/a0038454>
- Semple, R. J., J. Lee, D. Rosa, and L. F. Miller, 'A Randomized Trial of Mindfulness-Based Cognitive Therapy for Children: Promoting Mindful Attention to Enhance Social-Emotional Resiliency in Children', *Journal of Child and Family Studies*, vol. 19, no. 2, 2010, pp. 218–229. <https://doi.org/10.1007/s10826-009-9301-y>

- Sevinc, G., B. K. Hölzel, J. Hashmi, J. Greenberg, A. McCallister, M. Treadway, M. L. Schneider, J. A. Dusek, J. Carmody, and S. W. Lazar, 'Common and Dissociable Neural Activity Following Mindfulness-Based Stress Reduction and Relaxation Response Programs', *Psychosomatic Medicine*, vol. 80, no. 5, 2018, pp. 439–445. <https://doi.org/10.1097/PSY.0000000000000590>
- Siegel, D., *Brainstorm: The Power and Purpose of the Teenage Brain*, New York: Tarcher, 2014.
- Siddiqui, S. V., Chatterjee, U., Kumar, D., Siddiqui, A., & Goyal, N., 'Neuropsychology of prefrontal cortex', *Indian journal of psychiatry*, vol. 50, no. 3, 2008, pp. 202–208. <https://doi.org/10.4103/0019-5545.43634>
- Sisk, D. A., 'The art and science of planting seeds of mindfulness', *Gifted Education International*, vol. 34, no. 2, 2017, pp. 118–128. <https://doi.org/10.1177/0261429417716354>
- Srilekha, S., S. Soumendra, and P. K. Chattopadhyay, 'Effect of Muscle Relaxation Training as a Function of Improvement in Attentiveness in Children', *Procedia – Social and Behavioral Sciences*, vol. 91, 2013, pp. 606–613. <https://doi.org/10.1016/j.sbspro.2013.08.460>
- Stueck, M., and N. Gloeckner, 'Yoga for children in the mirror of the science: working spectrum and practice fields of the training of relaxation with elements of yoga for children', *Early Child Development and Care*, vol. 175, no. 4, 2005, pp. 371–377. <https://doi.org/10.1080/0300443042000230537>
- Teper, R., and M. Inzlicht, 'Meditation, mindfulness and executive control: the importance of emotional acceptance and brain-based performance monitoring', *Social Cognitive and Affective Neuroscience*, vol. 8, no. 1, 2013, pp. 85–92. <https://doi.org/10.1093/scan/nss045>
- Treurnicht Naylor, K., S. Kingsnorth, A. Lamont, P. McKeever, and C. Macarthur, 'The Effectiveness of Music in Pediatric Healthcare: A systematic review of randomized controlled trials', *Evidence-Based Complementary and Alternative Medicine*, 2011, pp. 464–759. <https://doi.org/10.1155/2011/464759>
- Vago, D. R., and D. A. Silbersweig, 'Self-awareness, self-regulation, and self-transcendence (S-ART): A framework for understanding the neurobiological mechanisms of mindfulness', *Frontiers in Human Neuroscience*, vol. 6, 2012. <http://dx.doi.org/10.3389/fnhum.2012.00296>
- Vickery, C. E., and D. Dorjee, 'Mindfulness Training in Primary Schools Decreases Negative Affect and Increases Meta-Cognition in Children', *Frontiers in Psychology*, vol. 6, 2016. <https://doi.org/10.3389/fpsyg.2015.02025>
- Williams, M. G., and J. Kabat-Zinn, 'Mindfulness: Diverse perspectives on its meaning, origins, and multiple applications at the intersection of science and dharma', *Contemporary Buddhism: An Interdisciplinary Journal*, vol. 12, 2011, pp. 1–18. <http://dx.doi.org/10.1080/14639947.2011.564811>
- Wood, L., A. T. Roach, M. A. Kearney, and Faith Zabek, 'Enhancing Executive Function Skills in Preschoolers through a Mindfulness-Based Intervention: A randomized, controlled pilot study', *Psychology in the Schools*, vol. 55, no. 6, 2018, pp. 644–660. <https://doi.org/10.1002/pits.22136>
- Zelazo, P. D., and K. E. Lyons, 'The Potential Benefits of Mindfulness Training in Early Childhood: A developmental social cognitive neuroscience perspective', *Child Development Perspectives*, vol. 6, no. 2, 2012, pp. 154–160. <https://doi.org/10.1111/j.1750-8606.2012.00241.x>

APPENDIX A: INCLUSION CRITERIA

	Criteria	Sub-categories	Description
1	What does it mean for a study to be Conceptually Coherent ?	Introduction	Topic, purpose, and study rationale are clearly stated.
		Literature Review	The relevant conceptual underpinnings of the issue are fully explained.
		Research questions	Research questions and/or hypotheses are well defined and drawn from sound evidence-based theoretical or conceptual framework.
2	What does it mean for a study to use Appropriate Methods ?	Methods	The research design and sampling are appropriate for the study. The study includes a well-articulated rationale.
		Theory (especially for studies with a primary theoretical framework)	A sound and established theoretical line is present.
		Data	Relevant data have been employed. Where survey data are used, the sample is well described and clearly appropriate for the task at hand.
		Analyses	The procedures and measures have been selected correctly and applied correctly.
3	What does it mean for a study to be Scientifically Valid ?	Results	The results of the statistical/empirical tests are fully and correctly interpreted. Basic statistical information, such as probability stats, sample sizes, etc., and coherent explanation of findings are included – avoids overstating the study's importance and generalizability.
4	Ethics (important but not a requirement to be accepted)	Ethical review	If the research involves primary data collection and/or the use of sensitive secondary data, ethical considerations are described in the study. For example, the article might include details of the procedures followed to ensure the ethical review of data, an indication that the study received the proper oversight from review board or any mitigation strategies.

APPENDIX B: RECORDS FLOW



for every child, answers

UNICEF Office of Research – Innocenti
Via degli Alfani, 58
50121 Florence
ITALY

Tel: (+39) 055 20330
Fax: (+39) 055 2033220
florence@unicef.org
www.unicef-irc.org
twitter: @UNICEFInnocenti
facebook.com/UnicefInnocenti

© 2021 United Nations Children’s Fund (UNICEF)

unicef 
Office of Research – Innocenti