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MASARYK UNIVERSITY

WELLBEING IN SCHOOLS

Enhancing Resilience and Well-being of All Students in Primary Schools

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Desk Research Report: Review of High-Impact Journal Articles on Mindfulness Programs for Children, Teens and Teachers

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Project Overview

WellbeingInSchools is a co-funded Erasmus+ project that aims to enhance the social and emotional well-being and resilience of students and teachers through the implementation of Mindfulness-Based Intervention (MBI) practices in schools. The project brings together expertise from universities and educational organizations across five European countries: Czechia, Greece, Slovakia, Ireland, and Finland.

The project's primary objectives focus on developing and implementing comprehensive MBI resources that can be effectively integrated into school environments. At its core, the project aims to develop an innovative toolkit for teachers alongside a mobile app designed for both teachers and students. These digital resources will be complemented by a pyramidal training program, where each participating country will train 3-4 trainers who will subsequently share their knowledge with at least 5 additional teachers in their respective countries. This training model ensures broader dissemination of MBI practices and sustainable implementation within schools.

A key component of the project is the development of the MBI toolkit, which will provide educators with detailed guidelines for curriculum integration, practical examples of MBI implementation, and assessment tools for personalizing MBI practices. The toolkit will also include specialized support materials for addressing special education needs, ensuring inclusivity in mindfulness practice implementation. Alongside the toolkit, the mobile app development forms a crucial technological component, featuring a user-friendly interface accessible to both teachers and students, varied MBI practices, progress tracking features, and multilingual support to ensure broad accessibility across participating countries.

The aim of this review of high-impact journal articles on mindfulness programs for children, teens and teachers is multifaceted, focusing on several key objectives. Firstly, it seeks to inform the development of a comprehensive MBI toolkit and mobile app tailored specifically for teachers and students. Additionally, the review aims to support training programs by providing evidence-based content for training teachers and school support staff. Another critical objective is to enhance the implementation of MBI practices, ensuring they are relevant, effective, and adaptable to diverse educational contexts. Furthermore, the review aims to enhance the evaluation of the impact of MBI practices by providing examples for assessing their effectiveness on student and teacher well-being and resilience.

Methodology

This review aimed to identify the most cited journal articles on mindfulness programs in education and their application to children, teenagers, students, and teachers. The search was conducted on the Scopus database, chosen for its comprehensive coverage and high-quality data, ensuring reliable and interdisciplinary access to a wide range of academic research. Scopus also provides detailed citation metrics, essential for identifying the most

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impactful and frequently cited articles. Specifically, in November 2024, we searched for articles with "mindful" or "mindfulness" in the title, and terms like "child," "adolescent," "teenage," "student," "learner," "teacher," or "educator" in the title, abstract, or keywords. Additionally, these articles had to include terms like "school," "education," or "classroom" in the title, abstract, or keywords, and be published between 2004 and 2024[1]. This approach ensured that the identified articles had mindfulness at their thematic core and focused on a school or educational environment.

The inclusion criteria focused on articles that implemented mindfulness interventions in a school environment for learners in primary (ISCED1) and lower secondary education (ISCED2). It also included mindfulness training for teachers who teach students in ISCED1 and ISCED2, without directly implementing mindfulness practices towards learners. The review encompassed qualitative, quantitative, theoretical, and review articles addressing mindfulness programs or activities for children and teenagers in primary or secondary education (ISCED 1-3). The selection was based on the top 30 most cited articles from 2004-2024 and the top 10 most cited articles from 2019-2024, to account for the time needed for more recent articles to accumulate citations.

Articles were excluded if they focused on mindfulness interventions for learners in pre-primary education (ISCED0), post-secondary (ISCED4), and tertiary education (ISCED5-8), or if the interventions were implemented outside of the school environment, such as for parents and children or in therapy sessions.

The thematic focus of the literature review included implementation strategies of mindfulness-based interventions (MBI), such as integration into the curriculum, classroom activities, mobile apps, and teacher training. It also examined the types or components of interventions, including mindfulness meditation, mindful movement, mindful breathing, journaling, body scan, relaxation, mindfulness in daily activities, and yoga. The review assessed the types of outcomes of interventions, such as academic, behavioural, socioemotional, and physiological outcomes, and identified the providers of interventions, including teachers, external trained instructors of mindfulness, and researchers. Additionally, it considered the types of target groups of interventions, focusing on age, geographical location, and special educational needs and disabilities (SEND). The relevance to inclusive education was also explored, with a specific focus on students with SEND, ethnic minorities, socioeconomic backgrounds, gender, and high/low achieving students.

In the analysis process, after identifying and downloading 40 journal articles, first we distinguished three types of articles:

1. empirical articles: employing either qualitative, quantitative, or mixed methods with original data
2. review articles: synthesizing other studies on mindfulness in education,

[1] The exact query in Scopus was the following: (TITLE (mindful*) AND TITLE-ABS-KEY (child* OR adolescent* OR teenage* OR student* OR learner* OR teacher* OR educator*) AND TITLE-ABS-KEY (school* OR education* OR classroom*)) AND PUBYEAR > 2003 AND PUBYEAR < 2025

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3. theoretical articles: focusing on conceptualizing key ideas and existing research without a specific review methodology.

Subsequently, we developed an analytical grid tailored to each type of article. Specifically, we identified distinct analytical categories to extract from each journal article (see Table 1). While many analytical categories were common across all article types (e.g., number of citations, target group of MBI, key findings, research gap), some categories were unique to each type. Review articles include specific categories like the scope and focus, review methodology, and number of reviewed publications. Theoretical articles focus on key theories and main arguments, while empirical articles emphasize research design, data collection, and specific outcomes.

Table 1

Analysed Categories for Each Type of Journal Article

Analytical Category	Review Articles	Theoretical Articles	Empirical Articles
Author(s)	✓	✓	✓
Year	✓	✓	✓
Title of Article	✓	✓	✓
Number of Citations	✓	✓	✓
Whose wellbeing? (target group)	✓	✓	✓
Grade Levels	✓	✓	✓
Scope and Focus or Theme	✓	✓	-
Methodology of Review (Inclusion Criteria, Analysis Methods)	✓	✓	-
Number of Reviewed Publications	✓	✓	-
Sample Size (number of participants)	✓	✓	✓
Data Collection Tools	✓	✓	✓
Results or Key Findings	✓	✓	✓

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Research Gap / Assess the Quality	✓	✓	✓
Key Concepts	✓	✓	✓
Definition of Mindfulness	✓	✓	✓
Components of Mindfulness in Practice / Intervention Components	✓	✓	✓
Intervention Description	✓	✓	✓
Practical Implications	✓	✓	✓
Provider of Intervention (teacher, trained instructor, researcher,…)	✓	✓	✓
Geographic Region	✓	✓	✓
Name of Intervention Program(s)	✓	✓	✓
Manualized Program	✓	✓	✓
Relevance to Inclusive Education	✓	✓	✓
Subjective comment	✓	✓	✓
Research Design (quali/quanti/mixed)	-	-	✓
Theoretical Framework	-	✓	✓
Data Collection / Analysis	-	-	✓
Main Arguments or Propositions	-	✓	-

After creating the analytical grid in a shared Excel file, we developed relevant prompts for each analytical category in SciSpace to extract pertinent information from each article. This preliminary analysis helped reviewers orient themselves with the articles. Subsequently, 11 reviewers[2] (experts from five partner organizations across five countries) participated in the actual review process. Each reviewer read the original journal article and either filled out answers for each relevant analytical category independently, comparing their answers with the prefilled SciSpace data, or adjusted the prefilled answers by adding new information,

[2] Emilia Ahlström, Maria Botikopoulou, Libby Hladik, Martina Kampichler, Sheri Leigh Kingsdorf, Zuzana Labašová, Uršuľa Mičovská, Jozef Miškolci, Martina Nosková, Katarína Ruttkayová, Christian Sweeney

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deleting irrelevant content, and reformulating as needed. This process resulted in the final version of extracted relevant information for each analytical category in a shared Excel file.

Three researchers from Masaryk University in Brno then analyzed the data using both quantitative and qualitative methods. Most analytical categories were analyzed quantitatively, such as the number of citations, number of articles addressing specific target groups, number of articles using specific data collection tools, and number of articles mentioning specific components of MBI (e.g., meditation or breath awareness). For empirical articles, each item was counted only once, and the same applied to review articles, which often reviewed multiple studies. For example, if a review study examined 30 empirical studies, with 15 mentioning meditation and 10 mentioning breath awareness, we counted each component (meditation and breath awareness) only once. Thus, with 40 articles analyzed, our analytical sample was 40, and the maximum count for each item was 40. On very rare occasions, an empirical study could have been analyzed as a standalone sample and also included in a review article, resulting in it being represented twice. However, these instances were infrequent and did not distort the overall findings. In addition, since review studies included multiple empirical studies, any component already represented by other studies was still counted only once in case of the review article. Therefore, the potential skewing of the final count was minimal.

For some analytical categories, we employed qualitative methods, specifically thematic analysis. This was used for components of mindfulness interventions, intervention descriptions, definitions of mindfulness, and the relevance of MBI to inclusion. By systematically categorizing the data, we were able to gain a more nuanced understanding of the MBI practices. This allowed us to capture the subtleties and descriptive details that quantitative methods alone could not provide, offering a richer and more comprehensive analysis.

This methodology ensured a comprehensive and focused review of the most impactful journal articles on mindfulness in education, providing valuable insights for the development and implementation of MBI in diverse educational contexts.

General Statistics on Reviewed Journal Articles

A collection of 40 journal articles were selected for this review report (see Table 2 and References). The list of the 40 reviewed articles reveals that the majority were published between 2010 and 2014, with notable peaks in 2010 and 2012 (with five journals each year). The journal "Mindfulness" emerged as the most frequent publication venue, hosting six of the articles, followed by "Journal of Child and Family Studies", hosting three articles. The remaining journals published either two or one article. This distribution highlights the growing interest and research activity in mindfulness within educational settings during this period. The analysis also underscores the diversity of journals (e.g., medicine, psychology, psychiatry, education) contributing to this field, reflecting the interdisciplinary nature of mindfulness research in education.

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Table 2

List of all selected journal articles with the number of citations in Scopus

Authors	Year	Title of the Article	Citations	Type
Beauchemin et al.	2008	Mindfulness meditation may lessen anxiety, promote social skills, and improve academic performance among adolescents with learning disabilities	261	Empirical
Benn et al.	2012	Mindfulness training effects for parents and educators of children with special needs	228	Empirical
Black et al.	2012	Psychometric Assessment of the Mindful Attention Awareness Scale (MAAS) Among Chinese Adolescents	146	Empirical
Bluth et al.	2014	Mindfulness and Self-Compassion: Exploring Pathways to Adolescent Emotional Well-Being	140	Empirical
Bögels et al.	2008	Mindfulness training for adolescents with externalizing disorders and their parents	300	Empirical
Braun et al.	2019	Middle School Teachers' Mindfulness, Occupational Health and Well-Being, and the Quality of Teacher-Student Interactions	103	Empirical
Britton et al.	2014	A randomized controlled pilot trial of classroom-based mindfulness meditation compared to an active control condition in sixth-grade children	162	Empirical
Burke	2010	Mindfulness-based approaches with children and adolescents: A preliminary review of current research in an emergent field	475	Review
Carsley et al.	2018	Effectiveness of Mindfulness Interventions for Mental Health in Schools: a Comprehensive Meta-analysis	200	Review

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Emerson et al.	2017	Teaching Mindfulness to Teachers: a Systematic Review and Narrative Synthesis	134	Review
Emerson et al.	2020	Mindfulness interventions in schools: Integrity and feasibility of implementation	63	Review
Felver et al.	2016	A Systematic Review of Mindfulness-Based Interventions for Youth in School Settings	244	Review
Flook et al.	2013	Mindfulness for teachers: A pilot study to assess effects on stress, burnout, and teaching efficacy	379	Empirical
Fung et al.	2019	A Randomized Trial Evaluating School-Based Mindfulness Intervention for Ethnic Minority Youth: Exploring Mediators and Moderators of Intervention Effects	73	Empirical
Gold et al.	2010	Mindfulness-based stress reduction (MBSR) for primary school teachers	169	Empirical
Greco et al.	2011	Assessing Mindfulness in Children and Adolescents: Development and Validation of the Child and Adolescent Mindfulness Measure (CAMM)	444	Empirical
Greenberg et al.	2012	Nurturing Mindfulness in Children and Youth: Current State of Research	315	Theoretical
Harris et al.	2016	Promoting Stress Management and Wellbeing in Educators: Feasibility and Efficacy of a School-Based Yoga and Mindfulness Intervention	141	Empirical
Hudson et al.	2020	Factors affecting the implementation of a whole school mindfulness program: A qualitative study using the consolidated framework for implementation research	52	Empirical

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Huppert et al.	2010	A controlled trial of mindfulness training in schools: The importance of practice for an impact on well-being	251	Empirical
Hwang et al.	2017	A systematic review of mindfulness interventions for in-service teachers: A tool to enhance teacher wellbeing and performance	182	Review
Kuyken et al.	2022	Effectiveness and cost-effectiveness of universal school-based mindfulness training compared with normal school provision in reducing risk of mental health problems and promoting well-being in adolescence: The MYRIAD cluster randomised controlled trial	85	Empirical
Kuyken et al.	2013	Effectiveness of the Mindfulness in Schools Programme: Non-randomised controlled feasibility study	260	Empirical
Lomas et al.	2017	The impact of mindfulness on the wellbeing and performance of educators: A systematic review of the empirical literature	147	Review
Matiz et al.	2020	Positive impact of mindfulness meditation on mental health of female teachers during the COVID-19 outbreak in Italy	125	Empirical
McKeering et al.	2019	A Systematic Review of Mindfulness-Based School Interventions with Early Adolescents	90	Review
Meiklejohn et al.	2012	Integrating Mindfulness Training into K-12 Education: Fostering the Resilience of Teachers and Students	406	Review
Mendelson et al.	2010	Feasibility and preliminary outcomes of a school-based mindfulness intervention for urban youth	356	Empirical

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Montero-Marin et al.	2022	School-based mindfulness training in early adolescence: What works for whom and how in the MYRIAD trial?	84	Empirical
Raes et al.	2014	School-Based prevention and reduction of depression in adolescents: A cluster-randomized controlled trial of a mindfulness group program	139	Empirical
Roeser et al.	2013	Mindfulness training and reductions in teacher stress and burnout: Results from two randomized waitlist-control field trials	472	Empirical
Roeser et al.	2012	Mindfulness Training and Teachers' Professional Development: An Emerging Area of Research and Practice	273	Theoretical
Schonert-Reichl et al.	2010	The Effects of a Mindfulness-Based Education Program on Pre- and Early Adolescents' Well-Being and Social and Emotional Competence	414	Empirical
Schonert-Reichl et al.	2015	Enhancing cognitive and social-emotional development through a simple-to-administer mindfulness-based school program for elementary school children: A randomized controlled trial	482	Empirical
Sibinga et al.	2011	Mindfulness-based stress reduction for urban youth	143	Empirical
Sibinga et al.	2016	School-based mindfulness instruction: An RCT	162	Empirical
Wall	2005	Tai Chi and mindfulness-based stress reduction in a Boston Public Middle School	153	Empirical
Yuan	2021	Mindfulness training on the resilience of adolescents under the COVID-19 epidemic: A latent growth curve analysis	61	Empirical
Zarate et al.	2019	Meta-analysis of mindfulness training on teacher well-being	54	Review

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Zenner et al.	2014	Mindfulness-based interventions in schools-A systematic review and meta-analysis	666	Review

In terms of citations, one article (Zenner et al., 2014) surpassed 600 citations, while six articles exceeded 400 citations. Among the 40 reviewed articles (see Table 3), 27 are empirical, employing either qualitative, quantitative, or mixed methods with original data. Eleven articles are review articles that synthesize other studies on mindfulness in education, and two are theoretical, focusing on conceptualizing key ideas and existing research without a specific review methodology. Collectively, these articles have garnered a total of 9,034 citations, averaging 225.85 citations per article. On average, theoretical articles are the most cited, followed by review articles, with empirical articles being the least cited. However, this distribution is skewed due to the inclusion of only two theoretical articles. The limited number of theoretical articles highlights a gap in the field, indicating a strong emphasis on empirical research over theoretical exploration.

Table 3

Distribution of citations according to various types of journals

Article Type	Number of Articles	Total Citations	Average Number of Citations
Review	11	2,661	242
Theoretical	2	588	294
Empirical	27	5,785	214
Total	40	9,034	226

Geographic Locations of Reviewed Journal Articles

Studies in the review primarily originated from North America (*n* = 23), including the two theoretical articles. Studies from Europe included both reviews and empirical studies (*n* =14). Oceania (*n* = 3) were review articles. Articles from Asia (*n* = 3) were empirical evidence. No articles included in this review were from South America or Africa. One Empirical study was from both Europe and Asia, and one Review was from North America and Europe for a higher total of geographic origins (*n* = 42) than studies in the review (*n* = 40) See Figure 1 and Table 4 for the breakdown of article type by continent of origin.

Figure 1

Review Articles Geographic Location by Continent and Study Type

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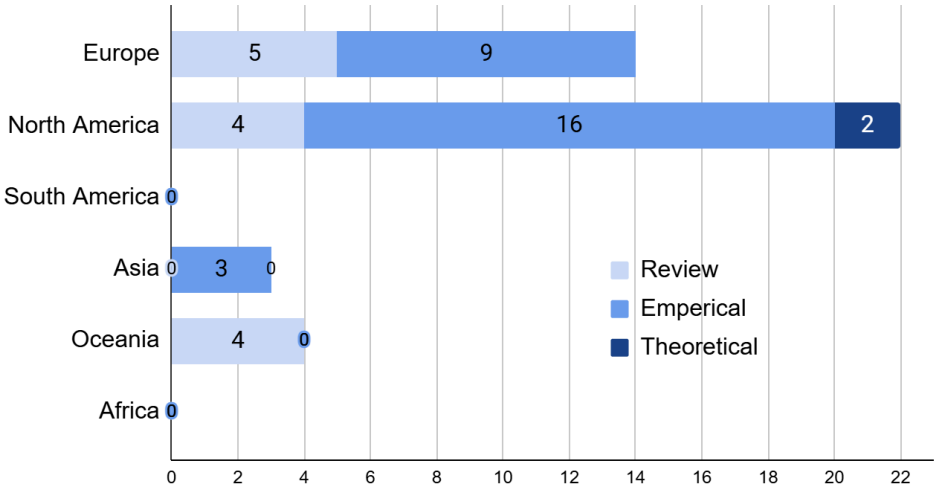

Table 4

Continent of Origin with Evidence

Continent	Review	Empirical	Theoretical	Total
Europe	5 (Burke, 2010 ; *Emerson et al., 2017; Loma et al. 2017; *Meiklejohn et al., 2012; Zenner et al., 2014)	10 (Bögels et al., 2008; Gold et al., 2010; *Huppert et al., 2010; Kuyken et al., 2013; Kuyken et al.,2022; Matiz et al., 2020; Montero-Marin et al., 2022; Raes et al., 2014)	0	14
North America	4 (Carsley et al., 2018; Felver et al., 2016; *Meiklejohn et al., 2012; Zarate et al, 2019)	16 (Beauchemin et al., 2008; Benn et al., 2012; Bluth et al., 2014, Braun et al., 2019; Britton et al., 2014; Flook et al., 2013; Fung et al., 2019; Greco et al., 2011; Harris et al., 2016; Mendelson et al., 2010; Roeser et al., 2013; Schonert-Reichl et al., 2010; Schonert-Reichl et al., 2015; Siblings et al., 2011; Sibling et al., 2016; Wall, 2005)	2 (Greenberg et al., 2012; Roeser et al., 2012)	22
South America	0	0	0	0
Asia	0	3 (Black et al., 2012; *Huppert	0	3

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		et al., 2010; Yuan, 2021)		
Oceana	4 (*Emerson et al., 2017; Emerson et al, 2019; Hwang et al., 2017; McKerring et al., 2019)	0	0	4
Africa	0	0	0	0

Note. Three studies originated from two continents and are marked with an asterisks (*) and listed in the table in both continents.

Target Groups of MBI Programs

The selected high-impact journal articles on mindfulness in education scrutinised MBI programs which focused on different target groups (see Table 5). Namely, we identified six review articles, one theoretical article, and nineteen empirical articles targeting students, while four review articles, one theoretical article, and seven empirical articles target teachers. Additionally, one review article and one empirical article address both students and teachers. This distribution suggests a strong research emphasis on the impact of mindfulness programs on students, with relatively fewer studies focusing on teachers or both groups.

Table 5

Frequency of MBI Programs Focusing on Students, Teachers or Both as a Target Group

Article Type	**Students (Children or Adolescents)**	**Teachers or Educational Professionals**	**Both**
Review	6 (Burke, 2010; Carsley et al., 2018; Emerson et al., 2020; Felver et al., 2016; McKeering & Hwang, 2019; Zenner et al., 2014)	4 (Emerson et al., 2017; Hwang et al., 2017; Lomas et al., 2017; Zarate et al., 2019)	1 (Meiklejohn et al., 2012)
Theoretical	1	1	0

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	(Greenberg & Harris, 2012)	(Roeser et al., 2012)	
Empirical	19 (Beauchemin et al., 2008; Black et al., 2012; Bluth & Blanton, 2014; Bögels et al., 2008; Britton et al., 2014; Fung et al., 2019; Greco et al., 2011; Huppert et al., 2010; Kuyken et al., 2013, 2022; Mendelson et al., 2010; Montero-Marin et al., 2022; Raes et al., 2014; Schonert-Reichl et al., 2015; Schonert-Reichl & Lawlor, 2010; Sibinga et al., 2011, 2016; Wall, 2005; Yuan, 2021)	7 (Benn et al., 2012; Braun et al., 2019; Flook et al., 2013; Gold et al., 2010; Harris et al., 2016; Matiz et al., 2020; Roeser et al., 2013)	1 (Hudson et al., 2020)
Total	26	12	2

Providers of MBI Programs

Providers of Mindfulness Interventions for teachers or students varied across studies and included primarily regular classroom teachers and external instructors. Additionally, researchers, student/peer-led, parents were listed as intervention providers. In the case where the intervention provider was unclear, the study was categorized as Not Stated. Studies that did not include a mindfulness intervention because they were observational or validation studies, or solely theoretical were categorised as No Intervention. In the case where multiple providers were noted, studies have been counted in each category. See Table 6 for the frequency of providers within the studies of this review.

Table 6

Frequency of Type of Intervention Provider across Review Studies

Provider	Frequency	Evidence
Classroom Teacher	17	(Beauchemin et al, 2008*; Britton et al., 2014; Burke, 2010*; Carsley et al., 2018; Emerson et al, 2019*; Felver et al., 2016*; Greenberg et al., 2012*; Hudson et al, 2020; Huppert et al., 2010*; Kuyken et al., 2013; Kuyken et al., 2022; McKeering et al., 2019*;

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		Meiklejohn et al., 2012*; Montero-Marin et al., 2022; Schonert-Reichl et al., 2010; Yuan, 2021; Zenner et al., 2014*)
External Instructor	22	(Benn et al, 2012; Bögels, 2008; Burke, 2010*; Carsley et al., 2018; Emerson et al, 2019*; Felver et al., 2016*; Flook et al., 2013; Fung et al., 2019; Gold et al., 2019; Greenberg et al., 2012*; Harris, et al., 2016; Huppert et al., 2010*; Hwang et al., 2017*; McKeering et al., 2019*; Meiklejohn et al., 2012*; Mendelson et al., 2010; Raes et al., 2014; Roeser et al, 2013; Siblinga et al., 2015; Siblinga et al, 2016; Wall, 2005*; Zenner et al, 2014*)
Researcher	5	(Beauchemin et al, 2008; Hwang et al., 2017*; Matiz et al., 2020; Schonert-Reichl et al., 2015; Wall, 2005*)
Student/Peer-led	1	(Emerson et al, 2019*)
Parent	1	(Burke, 2010*)
Not Stated	4	(Emerson et al., 2017; Lomas et al., 2017; Roeser et al., 2012; Zarate et al., 2019)
No Intervention	4	(Black et al, 2012; Bluth et al, 2014; Braun et al, 2019; Greco et al, 2011)

Note. As indicated with an asterisk (*) 12 studies noted multiple types of intervention instructors.

Names of MBI Programs

Across the articles in the review thirty-five unique mindfulness-based intervention programs were identified (see Table 7). **Mindfulness-Based Stress Reduction (MBSR) or Modified Mindfulness-Based Stress Reduction (mMBSR)** was the most commonly used intervention identified 15 times across articles.

The next most commonly used MBI programs were:

- **Learning to BREATHE**
- **Mindfulness in Schools Programme (MiSP)**
- **Mindfulness-Based Cognitive Therapy (MBCT)**
- **SMART-in-Education (Stress Management and Relaxation Techniques)**

Interventions that were described only as general mindfulness, meditation, or yoga without a specifically named title were eliminated from this list.

Table 7

Frequency of Named MBI Programs

	Name of Program	No of Articles	Evidence

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1	Mindfulness-Based Stress Reduction (MSBR) - including modified or mMBSR	15	Burke, 2010; Carsley et al., 2018; Emerson et al., 2017; Emerson et al, 2019; Flook et al., 2013; Gold et al., 2010; Greenberg et al., 2012; Huppert et al., 2010; Hwang et al, 2017; Lomas et al., 2017; McKeering et al, 2019; Meiklejohn et al., 2012; Siblings et al., 2011; Siblings et al, 2016; Wall, 2005
2	Learning to BREATHE	7	Carsley et al., 2018; Emerson et al. 2019; Felver et al., 2016; Fung et al., 2019; Zenner et al., 2014; Greenberg et al., 2012; Meiklejohn et al., 2012
3	Mindfulness in Schools Programme (MiSP)	7	Carsley et al., 2018; Emerson, 2019; Felver et al., 2016; Huson et al., 2020; Kuyken et al. 2013; McKeering et al., 2019; Meiklejohn et al., 2012
4	Mindfulness-Based Cognitive Therapy (MBCT) incudes: modified, child version, for adolescents with externalizing disorders)	6	Bögels et al., 2018; Burke, 2010; Emerson et al. 2017; Emerson et al., 2019; McKeering et al. 2019; Meiklejohn et al., 2012
5	SMART-in-Education (Stress Management and Relaxation Techniques)	6	Benn et al, 2012; Carsley et al., 2018; Emerson et al., 2017; Lomas et al., 2017; Meiklejohn et al., 2012; Roeser et al., 2012
6	CARE (Cultivating Awareness and Resilience in Education)	5	Emmerson et al., 2017; Hwang et al., 2017; Lomas et al, 2017; Meiklejohn et al., 2012; Rooster et al, 2012
7	MindUP	5	Carsley et al., 2018; Emerson et al, 2019; McKerring et al. 2012; Meiklejohn et al., 2012; Schonert-Reichel et al., 2015
8	Attention Academy Program (AAP)	4	Burke, 2010; Carsley et al, 2018; Felver et al, 2016; Meiklejohn et al., 2012
9	Mindfulness Awareness Practices (MAPs) *plus MAPs for ADHD	4	Burke, 2010; Felver et al., 2016; Meiklejohn et al., 2012*
10	MindfulSchools	4	Felver et al., 2016; Meiklejohn et al., 2012; Roeser et al. 2012; Zenner et al., 2014
11	Integrative Contemplative Pedagogy	3	Emerson et al, 2019; Felver et al, 2016; McKeering et al., 2019
12	Still Quiet Place	3	Carsley et al., 2018; Felver et al., 2016; Meiklejohn et al., 2012
13	CALM (Community Approach to Learning Mindfully)	2	(Harris et al, 2016; Lomas et al., 2017)

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14	Inner Resilience Program	2	Meiklejohn et al., 2012, Roeser et al., 2012
15	InnerKids Program	2	Grenberg et al., 2012; Meiklejohn et al., 2012
16	Mindfulness Education (ME) Program	2	Meiklejohn et al., 2012; Schonert-Reichl et al., 2018
17	Mindfulness-Based Wellness Education (MBWE)	2	Emerson et al., 2017; Meiklejohn et al., 2012
18	Move-into-Learning	2	Carsley et al, 2018; Felver et al., 2016
19	School-Based Mindfulness Training (SBMT)	2	Kuyken et al., 2022; Montero-Marin et al., 2022
20	Breathing Awareness Meditation	1	(Felver et al., 2016)
21	Group Mindfulness Therapy	1	(Emerson et al., 2019)
22	Holistic Life Foundation	1	Emerson et al., 2019
23	Master Mind	1	Carsley et al., 2018
24	Meditación Fluir	1	Zenner et al., 2014
25	Mindful Awareness for Girls through Yoga	1	Felver et al., 2016
26	Mindful Meditation for Adolescent with Learning Disabilities	1	Meiklejohn et al., 2012
27	Mindfulness-Oriented Meditation (MOM)	1	Matiz et al., 2020
28	Passageworks Soul of Education Course for Teachers	1	Roeser et al., 2012
29	Pause, Breath, Smile	1	McKeering et al. 2019
30	Planting Seeds	1	Felver et al., 2016
31	Sfat Hakeshev (The Mindfulness Language)	1	Meiklejohn et al., 2012
32	Smiling Mind	1	McKeering et al., 2019
33	Soles of the Feet	1	Felver et al., 2016
34	Stressed Teens	1	Meiklejohn et al., 2012

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35	Wellness Works in Schools	1	Meiklejohn et al., 2012

Implementation Descriptions of MBI Programs

The following section focuses on different strategies of integrating mindfulness activities into school settings. All in all, 25 out of the 40 reviewed articles provided information on how the mindfulness activities were included into school settings. The following table (Table 8) provides an overview of the relevant articles clustered together within two broad groups: standalone mindfulness courses and curriculum integrated mindfulness activities.

Table 8

Overview - Integrating mindfulness activities into school settings

Group	Articles
Standalone Mindfulness Courses	**Yuan (2021)** – 6-month structured program with daily mindfulness recordings and adherence tracking via software. **Wall (2005)** – 1-hour weekly Tai Chi and MBSR sessions, voluntary participation. **Sibinga et al. (2016, 2011)** – Adapted MBSR programs, 8 to 12 weeks, delivered in group sessions separate from curriculum. **Raes et al. (2014)** – 8 weekly 100-minute sessions school-based mindfulness groups, randomized across schools. **Mendelson et al. (2010)** – 12-week mindfulness and yoga program, 45-minute sessions, separate from academic lessons. **Harris et al. (2016)** – CALM program, 64 sessions over 16 weeks, focusing on educators' stress management. **Fung et al. (2019)** – Learning to BREATHE (L2B), 12-session standalone mindfulness training. **Zenner et al. (2014) / McKeering & Hwang (2019)** – Reviews highlighting multiple standalone mindfulness interventions. **Felver et al. (2016) / Emerson et al. (2020)** – Reviews discussing varied standalone mindfulness programs.

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Curriculum-Integrated Mindfulness activities	**Britton et al. (2014)** – 6-week mindfulness meditation program as part of South Asian history classes. **Hudson et al. (2020)** – Whole-school mindfulness approach (M-WSA), emphasizing teacher training and student sessions as part of regular subjects. **Schonert-Reichl & Lowler (2015)** – MindUP program, mindfulness activities integrated into daily class routine (3 times per day). **Schonert-Reichl et al. (2010)** – Mindfulness Education (ME) program, 10-week intervention practiced during class time. **Montero-Marin et al. (2022)** – School-Based Mindfulness Training (SBMT), integrated into the curriculum but faced engagement challenges. **Kuyken et al. (2022, 2013)** – • **2022:** SBMT added to or substituted within SEL curricula. • **2013:** MiSP replacing religious or health education classes. **Huppert et al. (2010)** – 12-lesson mindfulness program implemented within classroom sessions. **Greenberg & Harris (2011)** – Discusses integration of mindfulness into school schedules and teacher-led brief activities. **Meiklejohn et al. (2012)** – Advocates for mindfulness integration into the K-12 curriculum. **Carsley et al. (2018)** – Meta-analysis of integrated mindfulness-based interventions in school curricula.

1) Standalone Mindfulness Courses

Definition

Standalone mindfulness courses are structured interventions that are delivered separately from the regular school curriculum. These programs typically involve scheduled sessions where mindfulness techniques are taught as distinct, self-contained activities. They may be

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voluntary or mandatory, and they often take place during non-academic hours or as supplementary programs.

Common Features

- **Session-Based Structure**: Programs are usually delivered in a series of structured sessions (e.g., 6 to 12 weeks) with a clear beginning and end.
- **Dedicated Time Allocation**: Sessions often range from 45 minutes to 2 hours per week, typically outside regular academic instruction.
- **Expert-Led Training**: With standalone programs there is a tendency that facilitators are rather trained mindfulness instructors, but they might also be provided by educators with specific mindfulness training.
- **Focused Content Delivery**: These interventions emphasize specific mindfulness practices such as meditation, breathing exercises, yoga, and guided reflection.
- **Adherence Monitoring**: Some programs incorporate engagement tracking, such as daily check-ins, homework assignments, or participation incentives (e.g., Yuan, 2021).
- **Voluntary or Targeted Participation**: Some courses are opt-in, requiring parental consent (e.g., Wall, 2005), while others target specific student populations, such as adolescents with externalizing disorders (Bögels et al., 2008) or ethnic minority youth (Fung et al., 2019).

Variety within Standalone Mindfulness Courses

1. **Mindfulness-Based Stress Reduction (MBSR) and Cognitive Therapy (MBCT) Programs**
    - Adapted from clinical mindfulness practices (e.g., Sibinga et al., 2016; Raes et al., 2014).
    - Typically 8–12 weeks in duration.
    - Often targeted toward students facing stress, trauma, or mental health challenges.
2. **Yoga and Movement-Based Mindfulness Programs**
    - Incorporates physical movement with mindfulness (e.g., Tai Chi in Wall, 2005; yoga-based stress management in Mendelson et al., 2010).
    - Often used to enhance emotional regulation and physical well-being.
3. **Technology-Enhanced Mindfulness Training**
    - Uses digital tools to support implementation (e.g., Yuan, 2021, where students listen to daily mindfulness recordings and track participation through an app).
4. **Mindfulness Training for Educators and Parents**
    - Programs designed to reduce teacher stress and improve classroom management (e.g., Harris et al., 2016).
    - Some extend to parents, emphasizing mindful parenting (e.g., Bögels et al., 2008).

2) Curriculum-Integrated Mindfulness Activities

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Definition

Curriculum-integrated mindfulness activities refer to mindfulness practices embedded within regular school subjects or daily routines. These interventions are not separate from academic learning but are integrated into the school day to promote emotional regulation, cognitive functioning, and classroom well-being.

Common Features

- **Embedded in Existing Subjects**: Mindfulness is often included as part of Social and Emotional Learning (SEL), health education, or general classroom activities (e.g., Schonert-Reichl & Lowler, 2015; Kuyken et al., 2013).
- **Short, Frequent Practices**: Activities typically occur in brief, structured segments, such as 3–5 minutes of mindful breathing or reflection exercises throughout the school day (Schonert-Reichl et al., 2010).
- **Teacher-Led Implementation**: Most often, teachers receive training and incorporate mindfulness into their teaching, rather than relying on external experts (Montero-Marin et al., 2022).
- **Holistic Development Approach**: These programs often emphasize emotional intelligence, self-regulation, prosocial behavior, and classroom well-being in addition to mindfulness skills (Greenberg & Harris, 2011).
- **Scalability and Sustainability**: Due to their curriculum integrative design, these programs have more potential for long-term implementation and adaptability across different grade levels.

Variety within Curriculum-Integrated Mindfulness Activities

1) SEL Programs (Mindfulness Integrated Within Social-Emotional Learning Programs)

These interventions embed mindfulness as a core component within **Social-Emotional Learning (SEL) programs**, aiming to enhance students' emotional intelligence, self-regulation, and resilience. They are designed to be a **systematic part of the curriculum**, often structured with weekly lessons and daily mindfulness practices. SEL programs integrate mindfulness not as a standalone subject but as a tool to support emotional awareness, self-regulation, and prosocial behavior.

Key Features:

- Focuses on **developing social-emotional competencies** such as self-awareness, emotional regulation, and empathy.
- Taught **systematically within an SEL framework**, often by trained teachers.
- Includes structured lessons on mindfulness practices like **breathing exercises, gratitude, compassion, and emotional awareness**.
- Often **manualized** with clear lesson plans, assessments, and home practice recommendations.

Articles in This Category:

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- **Schonert-Reichl & Lowler (2015)** – MindUP program integrates mindfulness within SEL lessons; includes practices like optimism, gratitude, and kindness.
- **Schonert-Reichl et al. (2010)** – Mindfulness Education (ME) program, a 10-week intervention focused on fostering self-regulation and positive emotions.
- **Kuyken et al. (2022)** – School-Based Mindfulness Training (SBMT) as part of SEL curricula; showed mixed effectiveness.
- **Carsley et al. (2018)** – Meta-analysis of mindfulness-based interventions within SEL programs, assessing their impact on well-being.

2) Subject-Specific Lessons (Mindfulness Embedded Within Academic Subjects)

These interventions **integrate mindfulness within specific school subjects** rather than as a broader SEL or school-wide initiative. They are typically aligned with subjects like **religious studies, health education, history, or physical education**, and may use mindfulness to **enhance learning experiences, improve attention, and regulate stress** during lessons.

Key Features:

- Mindfulness is incorporated as **a teaching strategy within specific subjects** rather than a separate course.
- May **replace or supplement traditional subject content**, e.g., mindfulness replacing religious studies or being integrated into history lessons.
- Designed to support **learning outcomes, attentional control, and cognitive flexibility**, in addition to emotional regulation.
- Often **short-term programs** (e.g. 6–12 weeks) rather than ongoing daily mindfulness practices.

Articles in This Category:

- **Kuyken et al. (2013)** – Mindfulness in Schools Project (MiSP), integrated into religious studies or personal, social, and health education (PSHE) classes.
- **Huppert et al. (2010)** – A 12-lesson mindfulness program integrated within classroom lessons.
- **Britton et al. (2014)** – 6-week mindfulness meditation program as part of South Asian history classes.

3) Whole School Curriculum (Mindfulness Integrated Across the School Routine)

This category includes **school-wide mindfulness initiatives** that aim to incorporate mindfulness practices throughout the **entire curriculum and daily school routine**. These programs do not limit mindfulness to SEL lessons or specific subjects; instead, they are woven into the **broader school culture**, where teachers and students alike are encouraged to **practice mindfulness throughout the day**.

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Key Features:

- **Mindfulness is embedded across the curriculum**, school activities, and schedules.
- Includes **teacher-led mindfulness activities**, such as brief breathing exercises or mindful moments during class transitions.
- Focuses on **creating a school-wide culture** of mindfulness rather than a structured, lesson-based curriculum.
- Aims to **reduce stress, improve resilience, and enhance classroom engagement** for both students and teachers.

Articles in This Category:

- **Montero-Marin et al. (2022)** – School-Based Mindfulness Training (SBMT), integrated into the school curriculum but faced engagement challenges.
- **Greenberg & Harris (2011)** – Discusses school-wide mindfulness integration with teacher-led mindfulness activities throughout the day.
- **Meiklejohn et al. (2012)** – Advocates for integrating mindfulness across the **K-12 curriculum**, supporting both students and teachers in mindfulness practices.
- **Hudson et al. (2020)** – Whole-school mindfulness approach (M-WSA), emphasizing teacher training and student sessions as part of regular subjects.

Table 9

Variety of Features within Curriculum-Integrated Mindfulness Programs

Feature	SEL based Programs	Subject-Specific Lessons	Whole School Curriculum
Implementation context	Emotional and social learning curriculum	Academic subjects	School-wide culture of mindfulness
Teaching Approach	Structured lessons and daily practices	Mindfulness techniques used to enhance learning / focus	Informal mindfulness practices throughout the school day
Key Benefits	Enhances emotional intelligence, reduces stress, promotes well-being	Improves attention, focus and learning performance	Builds a mindfulness-based school environment
Duration	Ongoing throughout the school year	Typically 6-12 weeks as part of a subject	Continuous and embedded in school routines

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Components of MBI Programs

MBI programs in educational settings may incorporate various components (see Table 10). Identifying individual components was challenging because the descriptions of MBI programs often overlap. For example, sitting meditation can include breath awareness or body scan, as these practices are often part of the meditation itself. Thus, meditation, whether sitting or walking, frequently encompasses several other components. However, some elements of MBI, such as group discussions, psychoeducation, yoga, journaling, or daily activities, are distinct from specific types of meditation. In other words, the hierarchical relationship among these components is very complex and can be structured, for instance, like this:

- **Sitting Meditation**
  - Breath
  - Body and Body Scan
  - Emotions or Feelings
  - Thoughts
  - Present Moment
  - Senses and Sensations
  - Listening and Sounds
  - Loving Kindness and Compassion and Gratitude
  - Guided Visualization
  - Relationships and Friendships
  - Relaxation
- **Walking Meditation and Physical Movement**
  - Walking Meditation
  - Yoga
  - Tai Chi
  - Physical Exercises and Other Movements
- **Present Moment Awareness of** (in daily life whilst not being in a meditation state)
  - Daily Activities
  - Reactions or Behaviour
  - Eating
  - Breath
  - Body and Body Scan
  - Emotions or Feelings
  - Thoughts
  - Senses and Sensations
  - Listening and Sounds
  - Relationships and Friendships
- **Conscious Regulation** (in daily life by deciding to let go or change) of
  - Thoughts
  - Emotions or Feelings
  - Reactions or Behaviour
  - Loving Kindness and Compassion and Gratitude
  - Breath
  - Senses and Sensations
  - Relationships and Friendships
  - Relaxation
- **Group Discussion**

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- **Psychoeducation**
- **Journaling**

Regardless of their mutual relationship, the prevalence of individual MBI components across reviewed articles (see Table 10) is noteworthy. Namely, meditation is the most frequently mentioned component, appearing in 31 articles out of 40, and includes practices like loving-kindness, body scan, and breath-focused meditations. Breath awareness and body scan are also commonly cited, with 25 and 23 mentions respectively, emphasizing their importance in mindfulness practices. Emotions or feelings, thoughts, and present moment awareness are other significant components, each mentioned in numerous articles, reflecting their role in fostering emotional regulation and mindfulness.

These components aim to enhance students' mental health, emotional regulation, and overall well-being. Meditation involves sitting practices that can be done individually or in groups, focusing on relaxation and specific meditations. Breath awareness centers attention on breathing to anchor the mind, while body scan involves systematically focusing on different body parts to develop awareness and relaxation. Emotions or feelings and thoughts are addressed non-judgmentally, sometimes through labelling and observing them. Present moment awareness encourages attention to the current experience without judgment.

Table 10

Prevalence of MBI Components in Journal Articles

	Name of MBI Component	No of Articles	Evidence
1	**Meditation** (primarily sitting meditations with various focuses listed below)	31	(Beauchemin et al., 2008; Benn et al., 2012; Bögels et al., 2008; Britton et al., 2014; Burke, 2010; Carsley et al., 2018; Emerson et al., 2017, 2020; Felver et al., 2016; Flook et al., 2013; Fung et al., 2019; Gold et al., 2010; Greenberg & Harris, 2012; Harris et al., 2016; Hudson et al., 2020; Huppert et al., 2010; Hwang et al., 2017; Lomas et al., 2017; Matiz et al., 2020; McKeering & Hwang, 2019; Raes et al., 2014; Roeser et al., 2012, 2013; Schonert-Reichl et al., 2015; Schonert-Reichl & Lawlor, 2010; Sibinga et al., 2011, 2016; Wall, 2005; Yuan, 2021; Zarate et al., 2019; Zenner et al., 2014)
2	**Breath** (breath awareness or attention focus on breath)	25	(Beauchemin et al., 2008; Benn et al., 2012; Bögels et al., 2008; Britton et al., 2014; Burke, 2010; Carsley et al., 2018; Emerson et al., 2017; Felver et al., 2016; Fung et al., 2019; Gold et al., 2010; Greenberg & Harris, 2012; Harris et al., 2016; Hudson et al., 2020; Huppert et al., 2010; Hwang et al., 2017; Matiz

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			et al., 2020; McKeering & Hwang, 2019; Meiklejohn et al., 2012; Mendelson et al., 2010; Raes et al., 2014; Roeser et al., 2012; Schonert-Reichl & Lawlor, 2010; Sibinga et al., 2011; Zarate et al., 2019; Zenner et al., 2014)
3	**Body and Body Scan** (body awareness, attention focusing on different parts of the body)	23	(Bögels et al., 2008; Britton et al., 2014; Burke, 2010; Carsley et al., 2018; Emerson et al., 2017, 2020; Felver et al., 2016; Flook et al., 2013; Fung et al., 2019; Gold et al., 2010; Hudson et al., 2020; Huppert et al., 2010; Hwang et al., 2017; Matiz et al., 2020; McKeering & Hwang, 2019; Meiklejohn et al., 2012; Raes et al., 2014; Roeser et al., 2012, 2013; Schonert-Reichl & Lawlor, 2010; Sibinga et al., 2011, 2016; Zenner et al., 2014)
4	**Emotions or Feelings** (non-judgmental awareness of one's emotions or feelings, labelling emotions, regulating emotions, letting go of emotions)	21	(Beauchemin et al., 2008; Benn et al., 2012; Britton et al., 2014; Emerson et al., 2017; Fung et al., 2019; Greenberg & Harris, 2012; Huppert et al., 2010; Hwang et al., 2017; Kuyken et al., 2022; Matiz et al., 2020; McKeering & Hwang, 2019; Meiklejohn et al., 2012; Mendelson et al., 2010; Roeser et al., 2012, 2013; Schonert-Reichl & Lawlor, 2010; Sibinga et al., 2011, 2016; Wall, 2005; Zarate et al., 2019; Zenner et al., 2014)
5	**Daily Activities** (integrating mindfulness practices and awareness into daily mundane activities, like homework or assignments)	20	(Bögels et al., 2008; Burke, 2010; Emerson et al., 2017, 2020; Felver et al., 2016; Fung et al., 2019; Gold et al., 2010; Greenberg & Harris, 2012; Harris et al., 2016; Hudson et al., 2020; Kuyken et al., 2022; Meiklejohn et al., 2012; Raes et al., 2014; Roeser et al., 2012, 2013; Schonert-Reichl et al., 2015; Sibinga et al., 2011, 2016; Yuan, 2021; Zenner et al., 2014)
6	**Present Moment** (attention of present moment - whatever is in the focus of the attention)	17	(Beauchemin et al., 2008; Benn et al., 2012; Britton et al., 2014; Burke, 2010; Emerson et al., 2017, 2020; Felver et al., 2016; Gold et al., 2010; Harris et al., 2016; Hudson et al., 2020; Matiz et al., 2020; Meiklejohn et al., 2012; Roeser et al., 2012, 2013; Sibinga et al., 2011, 2016; Wall, 2005)
7	**Thoughts** (non-judgmental awareness of one's thoughts, labelling	16	(Beauchemin et al., 2008; Benn et al., 2012; Bögels et al., 2008; Britton et al., 2014; Fung et al., 2019; Huppert et al., 2010; Hwang et al., 2017; Kuyken et al., 2022; Matiz et al., 2020;

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	thoughts, letting go of thoughts)		Meiklejohn et al., 2012; Mendelson et al., 2010; Roeser et al., 2013; Schonert-Reichl & Lawlor, 2010; Sibinga et al., 2016; Zarate et al., 2019; Zenner et al., 2014)
8	**Yoga** (practising yoga postures)	16	(Bögels et al., 2008; Burke, 2010; Carsley et al., 2018; Felver et al., 2016; Flook et al., 2013; Gold et al., 2010; Greenberg & Harris, 2012; Harris et al., 2016; Hudson et al., 2020; Meiklejohn et al., 2012; Mendelson et al., 2010; Roeser et al., 2013; Sibinga et al., 2011, 2016; Zarate et al., 2019; Zenner et al., 2014)
9	**Movement and Walking** (walking form of meditation, attention on the movement)	13	(Bögels et al., 2008; Burke, 2010; Carsley et al., 2018; Emerson et al., 2020; Flook et al., 2013; Greenberg & Harris, 2012; Harris et al., 2016; Huppert et al., 2010; Hwang et al., 2017; McKeering & Hwang, 2019; Meiklejohn et al., 2012; Mendelson et al., 2010; Zenner et al., 2014)
10	**Relaxation** (focus on relaxing the mind and body parts)	12	(Burke, 2010; Emerson et al., 2017, 2020; Felver et al., 2016; Gold et al., 2010; Greenberg & Harris, 2012; Harris et al., 2016; Hudson et al., 2020; Meiklejohn et al., 2012; Roeser et al., 2012; Sibinga et al., 2011; Wall, 2005)
11	**Loving Kindness and Compassion and Gratitude** (meditations or conscious practices of empathy, gratefulness, kindness, generosity, caring, appreciation, compassion)	10	(Flook et al., 2013; Harris et al., 2016; Hwang et al., 2017; McKeering & Hwang, 2019; Meiklejohn et al., 2012; Mendelson et al., 2010; Roeser et al., 2012, 2013; Schonert-Reichl et al., 2015; Zenner et al., 2014)
12	**Senses and Sensations** (awareness of various senses like smelling, tasting, seeing, touching, hearing, or awareness of any related bodily sensations such as heat, moisture, etc.)	9	(Benn et al., 2012; Britton et al., 2014; Fung et al., 2019; Greenberg & Harris, 2012; McKeering & Hwang, 2019; Meiklejohn et al., 2012; Roeser et al., 2013; Schonert-Reichl et al., 2015; Zenner et al., 2014)

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13	**Group Discussion** (group reflection of the mindfulness experiences)	9	(Benn et al., 2012; Emerson et al., 2017; Flook et al., 2013; Raes et al., 2014; Roeser et al., 2013; Sibinga et al., 2011, 2016; Zarate et al., 2019; Zenner et al., 2014)
14	**Eating** (mindful eating, awareness of all senses while eating)	7	(Bögels et al., 2008; Burke, 2010; Carsley et al., 2018; McKeering & Hwang, 2019; Meiklejohn et al., 2012; Schonert-Reichl et al., 2015; Wall, 2005)
15	**Listening and Sounds** (awareness of sounds, mindful listening)	7	(Bögels et al., 2008; Huppert et al., 2010; McKeering & Hwang, 2019; Meiklejohn et al., 2012; Roeser et al., 2012; Schonert-Reichl et al., 2015, 2015)
16	**Psychoeducation** (lecturing about psychological concepts, mental health, and the principles of mindfulness)	7	(Burke, 2010; Carsley et al., 2018; Emerson et al., 2017; Meiklejohn et al., 2012; Montero-Marin et al., 2022; Raes et al., 2014; Zenner et al., 2014)
17	**Reactions or Behaviour** (awareness of one's own behavioural reactions or responses)	6	(Benn et al., 2012; Burke, 2010; Kuyken et al., 2022; Meiklejohn et al., 2012; Schonert-Reichl et al., 2015; Sibinga et al., 2011)
18	**Journaling** (taking a diary or a journal of one's experiences with mindfulness, emotions, thoughts, behaviours, etc.)	4	(Britton et al., 2014; Roeser et al., 2013; Schonert-Reichl et al., 2015; Schonert-Reichl & Lawlor, 2010)
19	**Relationships and Friendships** (focus on building good relationships)	3	(Roeser et al., 2012; Schonert-Reichl & Lawlor, 2010; Sibinga et al., 2011)
20	**Tai Chi** (practising Tai Chi movements)	2	(Meiklejohn et al., 2012; Wall, 2005)
21	**Guided Visualization** (guided meditation to visualize various	1	(Zarate et al., 2019)

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	situations or environment)		

Data Collection Tools

Over 120 tools for data collection were identified across the journal articles measuring a wide variety of outcomes. In order to examine the tools most relevant to our project, tools with fewer than three citations have been eliminated. The most cited 22 data collection tools, with three or more citations in our review, are presented in Table 11 with a report of available forms: child self-report, teacher form, adult self-report.

Table 11

Most Prevalent Data Collection Tools for Students and Teachers

Data Collection Tool Name	Prevalence	Child Self Report	Teacher Form	Adult Self Report	Evidence
PSS: Perceived Stress Scale	10	✓		✓	Benn et al., 2012; Black et al, 2012; Bluth & Blanton, 2014; Emerson et al, 2017; Emmerson et al., 2019; Fung et al., 2019; Kuyken et al., 2013; Siblinga et al, 2016; Zarate et al., 2019; Zenner et al., 2014
STAI: State Trait Anxiety Inventory	10	✓		✓	Beauchemin et al., 2008; Benn et al., 2012; Braun et al, 2019; Britton et al, 2014; Carsley et al, 2018; Emerson et al, 2017; Emmerson et al., 2019; Lomas et al., 2017; Roeser et al., 2013; Zarate et al., 2019
DASS & DASS-21: Depression Anxiety Stress Scale	8	✓		✓	(Carsley et al, 2018; Emerson et al, 2017; Emmerson et al., 2019;Gold et al., 2010; McKeering et al., 2019; Raes et al., 2014; Zarate et al., 2019; Zenner et al., 2014)
WEMWBS: Warwick-Edinburgh Mental Well-being Scale	7	✓	✓		(Emerson et al, 2017; Huppert et al., 2010; Kuyken et al., 2013; McKeering et al., 2019; Montero-Marin et al., 2022;

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					Zenner et al., 2014; Kuyken et al., 2022)
CAMM: Child Acceptance and Mindfulness Measure	7	✓			(Bluth & Blanton, 2014; Carsley et al, 2018; Greco et al., 2011; Kuyken et al., 2022; McKeering et al., 2019; Meiklejohn et al., 2012; Montero-Marin et al., 2022)
CES-D: Center for Epidemiologic Studies Depression Scale	7	✓		✓	(Benn et al., 2012; Black et al, 2012; Emerson et al, 2017; Kuyken et al., 2013; Kuyken et al., 2022; Montero-Marin et al., 2022; Zarate et al., 2019)
MAAS: Mindful Attention Awareness Scale	7	✓		✓	(Black et al, 2012; Bögels et al, 2008; Carsley et al, 2018; McKeering et al., 2019; Meiklejohn et al., 2012; Schonert-Reichl et al., 2015; Zarate et al., 2019)
MBI: Maslach Burnout Inventory	7			✓	(Braun et al, 2019; Emerson et al, 2017; Flook et al., 2013; Lomas et al., 2017; Matiz et al., 2020; Roeser et al., 2013; Zarate et al., 2019)
PANAS: Positive and Negative Affect Schedule	7	✓		✓	(Benn et al., 2012; Bluth & Blanton, 2014; Carsley et al, 2018; Emerson et al, 2017; Schonert-Reichl et al., 2010; Siblinga et al, 2016; Zenner et al., 2014)
BDI: Beck Depression Inventory	5	✓		✓	(Braun et al, 2019; Emerson et al, 2017; Lomas et al., 2017; Roeser et al., 2013; Zarate et al., 2019)
SCL-90 R: Symptom Checklist-90-Revised	5	✓		✓	(Flook et al., 2013; Lomas et al., 2017; Siblinga et al, 2011; Siblinga et al, 2016; Zarate et al., 2019)
FFM: Five Factor Mindfulness Questionnaire	4	✓		✓	(Flook et al, 2013; Matiz et al., 2020; Roeser et al., 2013; Zarate et al, 2019)

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BRIEF & BRIEF-2: Behaviour Rating Inventory of Executive Function (self and teacher versions)	3	✓	✓		(Kuyken et al., 2022; Montero-Marin et al., 2022; Zenner et al., 2014)
CAMS-R Cognitive and Affective Mindfulness Measure-Revised	3			✓	Britto et al., 2014; Huppert et al., 2010; Carsley et al; 2018)
BSI: Brief Symptom Inventory	3	✓		✓	(Emerson et al, 2017; Lomas et al., 2017; Zarate et al., 2019)
DERS: Difficulties in Emotion Regulation Scale	3	✓		✓	(Carsley et al, 2018; McKeering et al., 2019; Zenner et al., 2014)
SDQ: Self-Description Questionnaire	3	✓	✓		(Schonert-Reichl et al., 2010; Schonert-Reichl et al., 2015; Zenner et al., 2014)
SDQ: Strengths and Difficulties Questionnaire	3	✓	✓		(Kuyken et al., 2022; Montero-Marin et al., 2022; Zenner et al., 2014)
Self-Compassion Scale	3	✓		✓	(Benn et al., 2012; McKeering et al., 2019; Lomas et al., 2017)
SMFQ-C: Short Mood and Feelings Questionnaire—Child Version	3	✓	✓		(Fung et al., 2019; Mendelson et al., 2010; Zenner et al., 2014)
SSRS-TF: Social Skills Rating System	3	✓	✓		(Beauchemin et al., 2008; Greco et al., 2011; Zenner et al., 2014)
YSR: Youth Self Report	3	✓	✓		(Bögels et al, 2008; Britton et al, 2014; Fung, J. et al., 2019)

Impact of MBI Programs

The following section focuses on the reported impact of mindfulness activities for their target groups. All in all 27 out of the 40 reviewed articles provided information on this topic. The following table (Table 12) provides an overview of the relevant articles clustered together within four broad groups:

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Table 12

Studies Grouped by Impact

Group	Articles
Mindfulness for Emotional Regulation and Mental Health Improvement	**Yuan (2021)** – Increased resilience and emotional intelligence in adolescents. **Sibinga et al. (2016)** – Reduced depressive symptoms, anxiety, and stress in vulnerable youth. **Sibinga et al. (2011)** – Reduced hostility and emotional distress in urban youth. **Raes et al. (2014)** – Reduction of depression symptoms among adolescents. **Mendelson et al. (2010)** – Reduced rumination, intrusive thoughts, and stress responses. **Matiz et al. (2020)** – Improved anxiety, depression, and well-being in teachers during COVID-19. **Beauchemin et al. (2008)** – Decreased anxiety and increased social skills in adolescents with learning disabilities. **McKeering & Hwang (2019)** – Reductions in depression, anxiety, and affective disturbances. **Carsley et al. (2018)** – Small to moderate positive effects on mental health in schools. **Felver et al. (2016)** – Reductions in behavioral problems, anxiety, depression, and increased social skills. **Zenner et al. (2014)** – Significant improvements in stress reduction and resilience.
Mindfulness for Cognitive and Academic Performance	**Schonert-Reichl & Lowler (2015)** – Enhanced cognitive control, stress reduction, and executive functions. **Schonert-Reichl et al. (2010)** – Improved attentiveness and optimism, reduced maladaptive behaviors. **Beauchemin et al. (2008)** – Enhanced academic performance in students with learning disabilities. **Zenner et al. (2014)** – Strong improvements in cognitive performance.
Mindfulness for Social-Emotional Development and Prosocial Behavior	**Britton et al. (2014)** – Positive effects on internalizing and externalizing problems, improved affect. **Schonert-Reichl & Lowler (2015)** – Increased empathy, perspective-taking, optimism, and prosocial behavior. **Schonert-Reichl et al. (2010)** – Reduced aggression, increased social and emotional competence. **Wall (2005)** – Improved self-awareness, trust, and empathy in middle school students.

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	Bluth & Blanton (2014) – Mindfulness and self-compassion as key factors in adolescent emotional well-being. **McKeering & Hwang (2019)** – Positive improvements in social-emotional competence and optimism.
Mindfulness for Teacher Well-Being and Stress Reduction	**Matiz et al. (2020)** – Improved well-being, reduced emotional exhaustion in female teachers. **Kuyken et al. (2013)** – Reduced depression and stress symptoms in teachers. **Huppert et al. (2010)** – Positive effects on resilience and well-being in teachers. **Flook et al. (2013)** – Reduced stress and burnout, improved classroom performance. **Hwang et al. (2017)** – Mindfulness interventions improving teacher resilience and classroom interactions. **Lomas et al. (2017)** – Systematic review showing mindfulness benefits for educators.

1. Mindfulness for Emotional Regulation and Mental Health Improvement

This group includes mindfulness interventions aimed at improving emotional regulation, resilience, stress reduction, and alleviation of symptoms related to depression and anxiety.

- **Shared Focus:** These studies investigate how mindfulness practices can help individuals—especially adolescents and teachers—develop better emotional control, reduce psychological distress, and enhance overall well-being. They emphasize the role of mindfulness in building resilience, reducing negative affect, and improving coping mechanisms.
- **Variety of Included Articles:** This cluster includes interventions in various settings, such as schools (Yuan, 2021; Sibinga et al., 2016), pediatric care (Sibinga et al., 2011), and mental health interventions for educators (Matiz et al., 2020). Some studies focus on specific populations, like students with learning disabilities (Beauchemin et al., 2008) and underserved youth (Mendelson et al., 2010). While most studies report significant benefits, the meta-analyses (McKeering & Hwang, 2019; Carsley et al., 2018; Felver et al., 2016; Zenner et al., 2014) highlight variations in outcomes, showing small to moderate effects across different mental health indicators.

2. Mindfulness for Cognitive and Academic Performance

This group spans mindfulness interventions aimed at improving cognitive functions, including attention, executive functioning, and academic performance.

- **Shared Focus:** This group of studies explores how mindfulness enhances cognitive flexibility, self-regulation, and problem-solving, leading to better learning outcomes.

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The emphasis is on improving students' ability to focus, manage stress, and engage in academic tasks with increased attentiveness and motivation.

- **Variety of Included Articles:** Some studies target elementary school children (Schonert-Reichl & Lowler, 2015; Schonert-Reichl et al., 2010). There is also a focus on students with learning disabilities (Beauchemin et al., 2008). Meta-analyses (Zenner et al., 2014) confirm significant cognitive benefits but indicate variability in the effectiveness of interventions depending on implementation quality and program duration.

3. Mindfulness for Social-Emotional Development and Prosocial Behavior

This group includes mindfulness programs designed to cultivate empathy, social awareness, emotional intelligence, and prosocial behavior while reducing aggression and social conflict.

- **Shared Focus:** These studies investigate how mindfulness training can foster emotional intelligence, interpersonal skills, and a sense of social connectedness. They highlight mindfulness as a tool for reducing aggressive behaviors, increasing self-awareness, and enhancing positive social interactions.
- **Variety of Included Articles:** Studies include research on school-based mindfulness programs that integrate social-emotional learning (Schonert-Reichl & Lowler, 2015; Schonert-Reichl et al., 2010) and interventions that incorporate mindfulness with movement-based practices like Tai Chi (Wall, 2005). Other studies (Bluth & Blanton, 2014; McKeering & Hwang, 2019) explore the role of self-compassion and emotional well-being in promoting prosocial behaviors. The diversity in approaches suggests that mindfulness can be adapted to different educational and developmental contexts for social-emotional growth.

4. Mindfulness for Teacher Well-Being and Stress Reduction

This group includes mindfulness programs specifically designed to support teachers in managing stress, preventing burnout, and improving classroom interactions.

- **Shared Focus:** This cluster highlights the impact of mindfulness on teachers' mental health and their professional performance. It emphasizes mindfulness as a self-care strategy for educators, aiming to improve their emotional regulation, job satisfaction, and classroom management skills.
- **Variety of Included Articles:** Studies focus on different aspects of teacher well-being, such as emotional exhaustion during stressful periods (Matiz et al., 2020) and long-term mindfulness training for teachers (Kuyken et al., 2013). Research (Huppert et al., 2010; Flook et al., 2013) demonstrates mindfulness's effectiveness in enhancing teachers' resilience and performance. Systematic reviews (Hwang et al., 2017; Lomas et al., 2017) provide meta-analytic evidence that mindfulness significantly reduces burnout and stress among educators, supporting its integration into professional development programs.

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Relevance of MBI Programs for Inclusion

The reviewed articles mostly focused on the general student population or teachers, but several of them included or even specifically focused on students with Special Educational Needs and Disabilities (SEND), coming from ethnic minority backgrounds, and lower socio-economic backgrounds or having any other disadvantages. To be specific:

Relevance of MBIs for Students with SEND: MBIs have shown promise for students with SEND. Research by Beauchemin et al. (2008) and Bögels et al. (2008) has shown notable improvements in anxiety, social skills, and academic performance among adolescents with learning disabilities and externalizing disorders such as ADHD, ODD, and ASD. These interventions are particularly promising for addressing inattention and impulsivity in adolescents. The inclusion of parents in these programs suggests a holistic approach that benefits both students and their families. Furthermore, the involvement of caregivers and teachers in mindfulness programs can enhance the effectiveness of the interventions and provide a consistent mindfulness environment, as highlighted by Burke (2010) and Emerson et al. (2017). Overall, studies by Beauchemin et al. (2008), Benn et al. (2012), Bögels et al. (2008), Burke (2010), Felver et al. (2016), Greenberg & Harris (2012), Hudson et al. (2020), Meiklejohn et al. (2012), and Zenner et al. (2014) indicate that MBIs hold promising potential for reducing anxiety and improving social skills, behavior, and academic performance in students with SEND.

Relevance of MBIs for Students from Ethnic Minority Backgrounds: MBIs have been particularly effective for ethnic minority youth, addressing elevated mood symptoms and mental health challenges. Fung et al. (2019) demonstrated significant reductions in perceived stress and internalizing problems among low-income Asian and Latino students. Similarly, Sibinga et al. (2011) focused on urban youth, including those with HIV, showing improvements in psychological symptoms and quality of life. These findings suggest that MBIs can support inclusive education by addressing the emotional and behavioral needs of students from minority backgrounds, promoting psychological health and well-being.

Relevance of MBIs for Students from Disadvantaged Socio-Economic Backgrounds: Students from socio-economically disadvantaged backgrounds also benefit from MBIs. Mendelson et al. (2010) and Sibinga et al. (2011) highlighted the acceptability and attractiveness of mindfulness and yoga interventions for urban youth facing chronic stress, poverty, and violence. These interventions have been shown to improve interpersonal relationships, school achievement, and reduce stress, making them relevant for inclusive education practices. The studies emphasize the need for culturally relevant practices and flexible scheduling to accommodate students' diverse needs and responsibilities.

While MBIs hold promise for diverse student populations, there is a noted lack of rigorous research specifically targeting students with SEND or those from minority and disadvantaged backgrounds. Felver et al. (2016) pointed out the gap in research on MBIs for low-achieving students, highlighting the need for more studies to establish efficacy. Additionally, the indirect benefits of MBIs on teacher well-being, as discussed by Flook et al. (2013), suggest that improved teacher mental health could positively impact students, including those with special needs. Overall, the reviewed studies indicate that MBIs could serve as valuable tools in inclusive education settings, promoting psychological health and well-being among various student populations.

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Adjustments in Implementation of MBIs for Disadvantaged Students: The reviewed studies emphasize the necessity of tailoring MBIs to meet the specific needs of students with SEND and those facing various disadvantages. Burke (2010) and Emerson et al. (2017) highlight the importance of age-appropriate adaptations, such as using shorter sessions and sensory-based activities for younger students. Mendelson et al. (2010) and Carsley et al. (2018) stress the need for culturally relevant practices and flexible scheduling to accommodate students' diverse backgrounds and responsibilities. Additionally, the studies underscore the importance of providing clear, simple instructions and using visual aids to help students understand mindfulness practices. Overall, these adjustments are essential to ensure the accessibility and effectiveness of MBIs for diverse student populations, promoting their well-being and enhancing their learning experiences.

Recommendations on Components of MBI

The rationale for recommending the particular MBI components is three-fold. Firstly, it is based on their prevalence in high-impact journal articles on mindfulness in education. Secondly, it considers how these components align with the project's objectives. Thirdly, some components can be perceived as the main topics of specific lesson plans, while others are more activity types that can be implemented in any classroom setting, regardless of the topic (e.g., group discussions, journaling).

It is essential to highlight that the component of **psychoeducation** is necessary because it involves educating participants about psychological concepts, mental health, and the principles of mindfulness. It aims to enhance understanding of mental processes and equip individuals with skills to manage stress, emotions, and behaviors. Participants learn about the nature of stress, emotional regulation, cognitive processes, and the mind-body connection. This education helps them develop awareness of their mental states and provides practical tools for well-being. Psychoeducation is delivered through lectures, discussions, written materials, and interactive activities within mindfulness programs. In other words, it is a knowledge-building activity that can occur in all lesson plans or through a mobile app.

Group discussions and **journaling** are specific activities that can also happen during a regular school class; hence, they are not topics per se. Therefore, we propose integrating both into the project as well.

Additionally, we strongly believe that mindfulness practices should also be practiced outside of the school environment. Hence, we believe each lesson plan should include a particular homework or assignment that integrates mindfulness into **daily practice** by becoming **aware of the present moment** and **consciously regulating** one's behavior, thoughts, emotions, and relationships.

Therefore, the main question remains: which of the remaining MBI components should we prioritize as the topics for individual lesson plans or as components of the mobile app. Depending on the overall number of lesson plans, we propose to focus on these topics in the following order of preference (see Table 13):

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Table 13

Prioritizing MBI Components as Topics for Lesson Plans and Mobile App

	Name of the MBI component	Prevalence in articles
1	Meditation	31
2	Breath	25
3	Body and Body Scan	23
4	Emotions or Feelings	21
5	Thoughts	16
6	Reactions or Behaviour	6
7	Loving Kindness and Compassion and Gratitude	10
8	Movement and Walking	13
9	Eating	7
10	Relationships and Friendships	3
11	Senses and Sensations	9
12	Listening and Sounds	7
13	Relaxation	12
14	Guided Visualization	1

Here are the remaining MBI components and the explanation for their integration or elimination (see Table 14):

Table 14

Remaining MBI Components to Be Integrated or Eliminated

	Name of MBI Component	Reasons for Elimination	Prevalence
1	Daily Activities	Will be part of every lesson plan as an assignment or homework.	20
2	Present Moment	Will be part of every lesson plan as an assignment or homework.	17

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3	Yoga	Requires specific training for a lecturer.	16
4	Group Discussion	Will be part of most or all lesson plans as an activity within classroom practice.	9
5	Psychoeducation	Each topic or lesson plan will incorporate some form of lecture or description of aspects related to the particular MBI topic.	7
6	Journaling	Will be part of most or all lesson plans as an activity within classroom practice.	4
7	Tai Chi	Requires specific training for a lecturer.	2

Recommendations on Duration of MBI

The duration of mindfulness programs in school settings varies across studies, but several key findings can guide best practices for implementation. Below are the recommendations based on research:

1. Short, Frequent Practices Are More Effective Than Long, Infrequent Sessions

- **Daily short sessions (3–15 minutes) are more sustainable and effective** than long, sporadic sessions (Schonert-Reichl et al., 2010; Schonert-Reichl & Lawler, 2015).
- Mindfulness exercises should be integrated into the school day **at least three times a day for a few minutes each** to reinforce practice and prevent disengagement (Schonert-Reichl et al., 2015).
- Programs like **MindUP** (Schonert-Reichl & Lowler, 2015) have successfully implemented **three-minute mindfulness practices three times per day**, showing positive effects on cognitive and emotional outcomes.

2. Ideal Duration for a School-Based Mindfulness Program

- **8 to 12 weeks** is a common duration for structured mindfulness interventions in schools, aligning with models like:
  - **Mindfulness-Based Stress Reduction (MBSR)**: Typically 8 weeks (Sibinga et al., 2016).
  - **Mindfulness in Schools Project (MiSP)**: Typically **9–12 weeks** (Kuyken et al., 2013).
  - **Learning to BREATHE (L2B)**: A **12-session** curriculum for adolescents (Fung et al., 2019).
- **Longer programs (6+ months) can lead to deeper integration and sustained benefits**, as seen in Yuan's (2021) study where students practiced mindfulness for **six months daily** with significant resilience improvements.

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3. Session Length Recommendations Based on Age Group

The length of individual mindfulness sessions should be adjusted based on students' developmental stages:

Table 15

Duration of Mindfulness Intervention by Age Group

Age Group	Recommended Session Length	Recommended Total Duration
3-5 years	**2–5 minutes** per session	Daily, embedded in routine
6-10 years	**5–10 minutes** per session	8-12 weeks, daily or 3 times per week
11-14 years	**10–20 minutes** per session	8-12 weeks, at least 3 times per week
15-18 years	**15–30 minutes** per session	8-12 weeks, ideally daily

Younger students benefit from brief, playful practices (e.g., mindful movement, sensory mindfulness), whereas **older students** can engage in longer, more structured meditation and reflection (Carsley et al., 2018).

4. Extended Programs for Lasting Impact

- While **short-term programs (8-12 weeks) improve emotional regulation**, long-term practice is needed for **habitual and lasting benefits**.
- Programs with **ongoing implementation throughout the academic year** show greater success, particularly when integrated into the curriculum (Hudson et al., 2020).
- Some studies (Yuan, 2021) suggest that **six months or longer** may be ideal for **enhancing resilience and emotional intelligence**.

5. Sustainability and Teacher Well-Being

- **Teachers benefit from an initial 8-week training program** before delivering mindfulness in class (Roeser et al., 2013).
- Schools should **offer refresher courses or continued support** to sustain mindfulness practices beyond the initial training.
- Programs like **the Community Approach to Learning Mindfully (CALM)** showed that **short daily sessions (20 minutes) over 16 weeks** helped teachers sustain mindfulness without increasing workload (Harris et al., 2016).

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Final Recommendation: Balancing Structure and Flexibility

- **Minimum effective dose**: 8–12 weeks, at least 3 times a week.
- **Optimal long-term approach**: Daily integration (3–15 min per session), with continued teacher training and school-wide support.
- **Best for student engagement**: Frequent, short activities rather than long, isolated sessions.

Recommendations on Other Aspects of MBI

Key Recommendations for Successful Implementation of Mindfulness Activities in School Settings

Based on the evidence from the studies reviewed, successful implementation of mindfulness-based programs in schools requires careful consideration of several key factors. Below are the essential elements for an effective school-based mindfulness intervention:

1. Integration into the School Curriculum

- Mindfulness programs should be embedded into the school day rather than being treated as an optional or extracurricular activity (Kuyken et al., 2013; Schonert-Reichl & Lawler, 2015).
- Curricula should be flexible and adaptable to align with existing subjects, such as social-emotional learning (SEL) programs, physical education, or mental health initiatives (McKeering & Hwang, 2019).
- Short, frequent mindfulness practices (e.g., three minutes, three times a day) tend to be more feasible and effective than infrequent long sessions (Schonert-Reichl et al., 2010).

2. Teacher Training and Support

- Teachers should receive high-quality training in mindfulness practices before delivering the program to students (Hudson et al., 2020).
- Training should include personal mindfulness practice for teachers to ensure they embody mindfulness principles in their teaching (Roeser et al., 2013; Gold et al., 2010).
- Ongoing mentorship and refresher training should be provided to maintain fidelity and quality in program delivery (Meiklejohn et al., 2012).

3. Age-Appropriate and Culturally Relevant Curriculum

- Programs should be tailored to developmental stages, as different age groups may benefit from varying mindfulness techniques (Carsley et al., 2018).
- Younger children may benefit from sensory-based mindfulness (e.g., mindful eating, mindful movement), while adolescents may engage more with cognitive approaches such as mindfulness-based cognitive therapy (Burke, 2010).

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- Programs should also consider cultural contexts and the needs of diverse student populations to ensure inclusivity (Fung et al., 2019).

4. Engaging and Interactive Delivery Methods

- Mindfulness should be taught through experiential and interactive activities such as storytelling, games, and movement-based practices (Wall, 2005; Mendelson et al., 2010).
- Activities such as mindful breathing, mindful listening, gratitude journaling, and acts of kindness should be included to make the practice relatable and engaging for students (Schonert-Reichl et al., 2010).
- Digital tools and mobile applications may enhance accessibility and participation (Yuan, 2021).

5. Addressing Barriers to Implementation

- Common challenges include lack of time, teacher workload, and student engagement. These can be mitigated by:
    - Scheduling mindfulness activities within existing class structures rather than as an additional burden (Britton et al., 2014).
    - Encouraging students' autonomy in mindfulness practices through digital platforms and self-practice reminders (Yuan, 2021).
    - Gaining support from school administrators to foster a culture of mindfulness across the entire school (Hudson et al., 2020).

6. Measuring and Evaluating Impact

- Regular assessment of program effectiveness through student feedback, teacher observations, and validated psychological scales can ensure continued improvement (Raes et al., 2014).
- Longitudinal studies should be conducted to examine the long-term impact on mental health, academic performance, and behavior (Zenner et al., 2014).
- Based on the findings of this review the following data collection tools are recommended for further investigation for feasibility and utility for student and teacher mindfulness based interventions:
    - **PSS: Perceived Stress Scale** - student & teacher stress levels
        - Cohen, S., Kamarck, T., & Mermelstein, R. (1994). Perceived stress scale. *Measuring Stress: A Guide for Health and Social Scientists*, *10*(2), 1–2.
    - **STAI: State Trait Anxiety Inventory** - student & teacher stress levels
        - Spielberger CD, Gorsuch RL, Lushene PR, Vagg PR, Jacobs AG. 1983. *Manual for the State-Trait Anxiety Inventory (Form Y)*. Consulting Psychologists Press, Inc.: Palo Alto.
    - **PANAS: Positive and Negative Affect Schedule** - *student & teacher emotional regulation*
        - Watson, D., Clark, L. A., & Tellegen, A. (1988). Development and validation of brief measures of positive and negative affect: The PANAS scales. Journal of Personality and Social Psychology, 54(6), 1063–1070. https://doi.org/10.1037/0022-3514.54.6.1063

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- **MAAS: Mindfulness Attention Awareness Scale** - *student & teacher mindfulness skills*
  - Brown, K. W., & Ryan, R. M. (2003). The benefits of being present: Mindfulness and its role in psychological well-being. Journal of Personality and Social Psychology, 84(4), 822–848. https://doi.org/10.1037/0022-3514.84.4.822
- **CAMM: Chid Acceptance Mindfulness Measure** - *student mindfulness skills*
  - Greco, L., Baer, R. A., & Smith, G. T. (2011). Assessing mindfulness in children and adolescents: Development and validation of the child and adolescent mindfulness measure (CAMM). Psychological Assessment, 23, 606-614.
- **WEMWBS: Warwick-Edinburgh Mental Well-being Scale** - *student and teacher social emotional development*
  - Tennant, R., Hiller, L., Fishwick, R., Platt, S., Joseph, S., Weich, S., Parkinson, J., Secker, J., & Stewart-Brown, S. (2007). The Warwick-Edinburgh Mental Well-being Scale (WEMWBS): Development and UK validation. Health and Quality of Life Outcomes, 5, Article 63. https://doi.org/10.1186/1477-7525-5-63
- **CES-D: Center for Epidemiologic Studies Depression Scale** - *student and teacher social emotional development*
  - Radloff, L. S. (1977). The CES-D scale: A self report depression scale for research in the general population. Applied Psychological Measurements, 1, 385-401.
- **MBI: Maslach Burnout Inventory -** *teacher well-being*
  - Maslach, C., Jackson, S.E., Leiter, M.P., Schaufeli, W.B. and Schwab, R.L. (1986). Maslach burnout inventory (Vol. 21), Palo Alto, CA: Consulting psychologists press.
- **BDI: Beck Depression Inventory -** *teacher well-being*
  - Beck, A. T., Ward, C. H., Mendelson, M., Mock, J., & Erbaugh, J. (1961). An inventory for measuring depression. Archives of General Psychiatry, 4, 561–571. https://doi.org/10.1001/archpsyc.1961.01710120031004

By focusing on these key areas, schools can create an environment where mindfulness practices are not only implemented effectively but are also sustained over time, leading to meaningful improvements in student and teacher well-being.

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