A Systematic Review of Research on Training Faculty on Well-Being in STEM

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A SYSTEMATIC REVIEW OF RESEARCH ON TRAINING FACULTY ON WELL-BEING

Abstract

This review paper presents the systematic literature review of research from 2012 to 2022 on Faculty Development Programmes and Well-being. Faculties are the assets of the world, as they sculpt future generations. They carry out various functions along with teaching and guiding the students. The tremendous growth of technology puts forth the necessity for faculties to develop simultaneously. The mental overload due to increased demands on the outcome of performance, inflation rates, and the advent of COVID-19 have a significant impact on the faculties. The current generation of students entails both intellectual and existential competence from their faculties. It has been established that the faculty's mental health influences the well-being of the students. The faculty-student relationship will be strengthened with their increase in mental health, which benefits the students to follow healthy life choices. Students' perspective of life and education is substantially directed by the faculties. All these necessitate the faculties to improve their outlook on life, thus supporting students to do the same. Overall Well-being is determined by a positive stance on life. Well-being is determined in a myriad of ways, which amplifies its significance. The concept of well-being had undergone substantial research over the past sixty years validating its need. Empirical evidence from the review studies showed that the well-being of faculties is correlated and predicted by both job-related and personal variables. Thus, enabling faculties towards well-being shall lead to better cope with the expectations and responsibilities of their role. The quandaries of post-COVID-19 obligate well-being training among faculties which would also benefit the students. To guide students on well-being and to overlook adversities, faculties need to effectuate well-being in their lives. This review paper provides a foundation to establish the necessity of Faculty Development Programmes on well-being. This paper will be presented by the traditional lecture method.

Introduction

Teachers are the frontline workers responsible for promoting learning. Their contribution to the realm of education has shifted from mere knowledge providers to a much more complex role. Their role in enhancing the skill, attitudes, and knowledge of the students has overwhelming responsibility on them [1]. Also, teachers have a significant impact on student success and motivation [2]. The recent pandemic has improved the significance of teachers in both educational and value-based aspects of student life. The 21st century and its challenges have teachers in an influential role. The need to meet the demands of digital and technological developments, along with its inclusion to promote education is expected from teachers [3]. This indicates the vitality for continuous learning among teachers.

The shortage of teachers has increased enormously, leaving the future of education and students dubious [4]. The augmentation of stress and burnout among teachers put the quality of teaching at risk [5]and amplifies the attrition rates among teachers [6]. Teachers are expected to be effective guides for future generations which instill the significance of their Well-being. Teachers' Well-being determines their ability to face various stressors in their profession [7] and complements the outcomes of student learning [8]. Acton and Glasgow define teachers' Well-being as their sense of personal and professional accomplishment and feeling of purpose created through collaboration with students and co-workers [9]. This definition explores the need for teachers' Well-being to have a harmonious educational environment for the students. Teachers' Well-being by itself is of value to the health of the teachers, student performance, and fiscal necessity [10].

Well-being is a multidimensional context and developmental programs need to address various concepts of Well-being to produce effective outcomes. For example, according to Ryff and Singer, there are six dimensions of Well-being [11]. The first dimension is self-acceptance, which predominantly targets increasing self-efficacy and creating a stronger sense of self among teachers. Faculty development programs have been shown to increase teachers' self-efficacy [12], which in turn improves student learning, motivation and contentment [13], and improve teaching practices [14] as an outcome. The second dimension is the positive relationship with others, which articulates the need for social support among teachers to exhibit Well-being [15]. Various research has shown that learning as a group during faculty development programs has a significant impact on the intended outcome [16]. The third dimension "autonomy" has a significant impact on the professional empowerment of teachers. Development training programs increase the feeling of credibility and empowerment which leads to Well-being through autonomy [17],[18].

Environmental mastery as the fourth dimension allows the teachers to be at ease in their personal and professional environment. The ability of teachers to improve teaching practices, and inculcate their values into their work environment through developmental programs are significant references to environmental mastery [15]. These skills learned during the training programs need to be supported by educational institutions to support the learning process [19]. The fifth dimension is the purpose in life, which gives educators a feeling of connection to their lives and direction. Studies have shown that development programs help them feel intrinsically motivated in their roles as a teacher [15] and increases engagement in work [20]. The last dimension according to Ryffs is personal growth, which can be improved by the ability to continuous development through training programs [21]. Therefore, it has been evident through various studies that the dimensions of Well-being can be improved through faculty development programs.The world is changing at an alarming phase. Countries are going beyond economic prosperity towards the harmony of the citizens as an indicator of development [22]. Teachers sculpt the future of the nations, and this mandates the focus on teachers' Well-being. The faculty development programs counteract the effects of burnout and stress among educators, and positively impact the facets that support Well-being. These training programs can include an array of activities like workshops [23], team learning [24], or through on-the-job learning [25]. The necessity for studies to contemplate various training programs and their effects on teachers' Well-being is crucial. It allows the administrators and the institutions to understand the significance of teachers' Well-being and choose an appropriate faculty development program.

Theoretical background
The theoretical background aids to understand the underlying concepts of Well-being and development programs.
Table 1 explores various theories underlying Well-being and developmental programs and addresses the theories in relation to teachers.

Author & Year	Theoretical Background	Relevance To Teachers
Diener, 1984	Diener's Subjective Well-being explores the perception of the individual about his/her life. It reflects the positive and limiting emotional reactions to one's satisfaction with life [26]. This theory by Diener shows Well-being as an outcome of subjective evaluations, which can be based on the individual's subjective characteristics and beliefs about life.	Teachers' Subjective Well-being has been shown to influence their view on work and their overall satisfaction with life [27]. It has been predominantly noted that teachers with decreased levels of Subjective Well-being are highly reactive to challenges with students [28]

Ryff and Singer, 1996	Psychological Well-being according to Ryff, depends upon how well the individual's life is progressing. Ryff presented Well-being as a combination of feeling well and performing effectively in life. There are six dimensions of Psychological Well-being, which include personal development, self-acceptance, environmental mastery, interpersonal relationships, autonomy, and life purpose [29].	The dimensions contribute to teachers' performance, sense of achievement, and their student's mental health [30].
Ryan and Deci, 2001	The Self-determination theory by is a eudemonic approach to Well-being [31]. It highlights that for Well-being to be attained, the individual's need of competence, autonomy, and relatedness are addressed. The need of competence is achievement-oriented, whereas the need for autonomy relates to the ability to make free choices, and the need of relatedness necessitates the drive for meaningful social connections. This theory provides insight to the importance of growth and development for an individual to feel resourceful and satisfied with life [32].	Intervention research by Cheon et al., based on the self-determination theory showed that Teachers' Well-being significantly increased contributing to improved functioning [33].
Seligman 2011	In 2011, Seligman's PERMA model became the renowned concept of positive psychology [34]. It is a multidimensional model of Well-being which comprises of 5 crucial factors: Positive Emotion, Engagement, Positive Relationships, Meaning and Accomplishment [34].	One study by Zeng et al, based on PERMA model showed that higher values on the dimensions showed significant relationship with growth mindset and increased will to perform [35]. Using positive strategies to improve Well-being impacts the teachers' view on every challenge and brings out an optimistic approach to teaching [36].
Dweck & Leggett, 1988	The "Theory of Self" by Dweck & Leggett suggests that the beliefs held by the individuals impacts the psychological operation [37]. It is a form of implicit theory where the individual can have either of the two types of mindsets: the fixed mindset or the growth mindset. The fixed mindset among individuals impairs development and holds rigid beliefs, whereas the growth mindset allows the individual to continuously develop. The individuals' views of themselves and their lives are also influenced by the mindset, which results in a predetermined ideology of Well-being.	These mindsets impact the teachers' involvement in the developmental programs and thereby impact the outcome i.e., Well-being [38]. The extension of Dweck's work is the broaden-and-build theory by Fredrickson [40], which suggests that positive emotions influence and broadens the mindsets of individuals. Thus, developmental programs focusing on Well-being might also impact the mindset of teachers and improve their overall functioning.
Maslow, 1943	Maslow's human motivation theory addresses the five hierarchical needs that drive an individual toward growth [40]. The five motivation needs are physiological needs, safety needs, belonging needs, esteem needs, and self-	This theory is adapted by Fisher and Royster to understand the needs of teachers [41]. The basic need for physiology and safety in teaching included the need for development and wellness. Through faculty development

	actualization. All these needs drive the individual towards personal Well-being	programs, the teachers gain personal growth and development. It allows them to attain various levels of needs and motivates them toward effective teaching. The feeling of subjective Well-being is also achieved through continuous development and further accomplishments of higher-order needs.
Bandura, 1999	The theory of self-efficacy by Bandura provides frameworks for faculty development programs on Well-being [42]. Self-efficacy is the individuals' belief in their capacity to exhibit performance to achieve their goals.	Self-efficacy influences the teachers' subjective outlook on their personal development and influences their teaching. It impacts the Well-being of teachers in accordance with the theory of Ryffs. The various forms to attain self-efficacy include experience, social persuasion, social modelling, and emotional and physical reaction. Faculty development programs concentrating on the various sources of improving self-efficacy shall consequently influence the Well-being of teachers.

Problem statement

The significance of research on Well-being has substantially increased through the years. Well-being is a vast spectrum of our physical, emotional, intellectual, and social amelioration. Research has focused on Well-being within various realms of careers. Many consider that Well-being is subjective and needs skills to attain overall Well-being. This necessitates to study various training programs that shall support the Well-being of the faculties. This study focuses on reviewing various studies that focus on the aspects of teachers' Well-being and the training programs that will lead toward it.

Methodology

A systematic review is a process of identifying and analysing various studies to gather evidence on any area of interest. This study focuses on Well-being and faculty development programs for a 10-year period. It allows us to infer various programs used to support teachers' Well-being. This study focused on teachers of various educational levels and types, to broaden the area of the approach. A flowchart represents the number of references searched, identified, included, and excluded.

Search strategy

The search strategy used the following data sources: Google Scholar, Frontiers in Psychology, Springer, ResearchGate, PsyInfo, Academia, Tanfonline, Elsevier, ERIC (Education Resources Information Center), ProQuest, Sage Journals, and Science Direct. All these sources had an enormous amount of data regarding Well-being, but our focus lay primarily on teachers' Well-being and faculty development programs. Hence, to acquire the maximum works of literature from the above-mentioned data sources, keywords related to this study were used. The keywords included "Well-being of teachers", "teacher wellbeing," "teachers Well-being", "teacher well being", "well being of teachers", "teacher Well-being and development programs", "Faculty development programs" and "teacher wellbeing and

development programs". These allowed us to gather a lot of primary sources of data. The search term teachers were replaced with faculty and educators to identify many more sources of information. The selection criteria were used to evaluate each study.

Selection criteria

The selection criteria for the study followed the inclusion and exclusion criteria. This allowed us to scrutinize various resources available and ensured the filter of the most relevant studies.

- Studies related to the Well-being of teachers and development programs: The studies to be scrutinized need to be relevant to teachers' Well-being and programs being implemented on teachers to improve their Well-being.
- Study design: The studies such as review, or metanalysis are not included. Empirical studies were the focus of this systematic review.
- Target population: The studies to be selected must be conducted on teachers as the target population.
- Publication year: The studies published between 2012 and 2022 were included in this study.
- Language: This review is limited to studies published in English.
- Well-being: Studies with Well-being as a common consequence rather than a variable of interest are not chosen.
- Studies on faculty development programs addressing factors not related to Well-being are excluded.

The initial search for studies resulted in a total of 1898 studies. The articles were filtered based on each of the selection criteria. Out of the 1898 studies, 267 studies were related to faculty development programs and teacher outcomes. On further scrutiny, based on the lack of intervention outcome, 93 studies were excluded. The remaining 174 studies, were filtered based on whether they had either Well-being as a pocket term or addressed it in an unrelated context. This resulted in 98 studies being excluded. On further scrutiny, based on the target population including other non-faculty populations, 47 studies were excluded. Finally, 29 studies were considered for this systematic review. All the selected studies were empirical and used programs to improve teachers' Well-being. The flowchart represents the number of references searched, identified, included, and excluded.
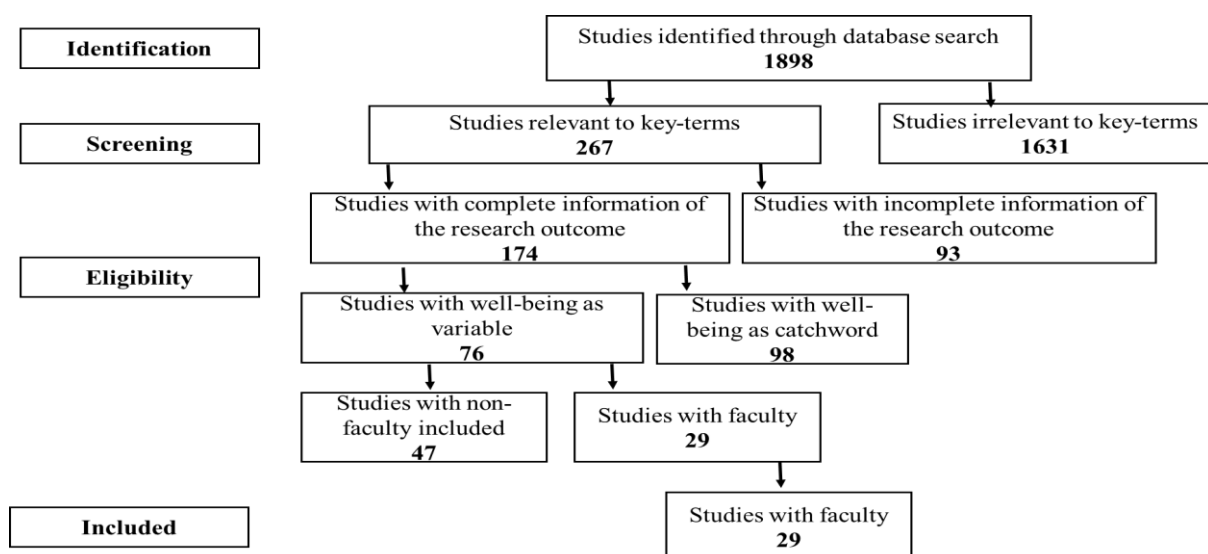

Fig. 1 represents the selection criteria used in this study.

Results

The table shows 29 peer-reviewed studies from 2012 to 2022, the year, author, the title of the developmental program used, the number of teachers who participated in the respective study, the time period of the program, the targeted variables of each study, and the effect of the program on the Well-being of teachers. The population of the studies varied from a minimum of 5 participants to a maximum of 1519 participants. Various variables along with Well-being were addressed in the studies, the majority of which are stress, burnout, and life satisfaction. The duration of the program has varying ranges of which all the programs showed positive effects on teachers' Well-being. All the below studies are empirical and addressed teachers of different educational levels and types.

Table 2 shows the year, authors, program title, number of teachers included, target variables and the effect of the program on well-being of all the studies included in this review.

Year	Author	Program Title	No. of teacher	Period	Effect on Well-being
2012	Chan [43]	Gratitude program	143	8 weeks	Positive
2013	Chan [44]	Gratitude Intervention and Coping Intervention	78	8 weeks	Positive
2013	Jennings et al., [45]	Cultivating Awareness and Resilience in Education (CARE For Teachers)	50	30-hours	Positive
2013	Talvio et al., [46]	Gordon's Teacher Effectiveness Training	69	4 days	Positive
2013	Saaranen et al., [47]	Comenius Program	57	-	Positive
2014	Vesely et al., [48]	Emotional Intelligence Training Program	49	5 weeks	Positive
2014	Sharrocks [49]	Chill And Chat Program	30	8 weeks	Positive and small
2014	Cheon et al., [50]	Autonomy-Supportive Intervention Program	27	6 months	Positive and moderate
2015	Wolf et al., [51]	Learning To Read in A Healing Classroom	346	3 years	Positive
2015	Hue et al., [52]	Mindfulness-Based Programme	70	6 weeks	Positive
2016	Beshai et al., [53]	Stress-Coping Program	89	7 weeks	Positive
2016	Tamilselvi et al., [54]	Yoga Training	36	48 days	Positive
2017	Van et al., [55]	Job Demands-Resources (JD-R)	71	6 weeks	Positive
2017	Cook et al., [56]	Achiever Resilience Curriculum (Arc)	67	8 weeks	Positive and medium
2018	Bradley et al., [57]	Four Pillars of Wellbeing curriculum	49	12 months	Positive
2018	Laine et al., [58]	Cognitive training	1519	3 years	Positive
2018	Taylor et al., [59]	CALMERSS	5	4 weeks	Positive
2018	Quinlan et al., [60]	Strength-based programmes	10	6 weeks	Positive
2018	Rahm and Heise [61]	Positive psychological interventions	89	5 weeks	Positive
2018	Sottimano et al., [62]	Psychological counseling and psychosocial intervention	514	-	Positive

Year	Author	Program Title	No. of teacher	Period	Effect on Well-being
2019	Jennings et al., [63]	CARE	224	9.5 months	Positive
2019	Maratos et al., [64]	Compassionate Mind Training (CMT) Program	70	12 weeks	Positive
2019	Fernandes [65]	Professional learning programme	59	18 hours	Positive
2019	Braun et al., [66]	Mindfulness program	58	2 days	Positive
2020	Hayes et al., [67]	Teacher Classroom Management program	80	6 days	Positive
2021	Kidger et al., [68]	Mental health training	25	2 months	Positive and low
2021	Zadok-Gurman et al., [69]	Inquiry-Based Stress Reduction (IBSR)	32	7 months	Positive
2021	Dreer et al., [70]	Audio Podcast-Based program	117	15 weeks	Positive
2022	Matos et al., [71]	Compassionate Mind Training Intervention	31	6 weeks	Positive

Discussion

Faculty development programs are tools to improve teachers toward progress. Though there are various forms of developmental programs to support teachers in professional development, it is necessary to identify programs that will inculcate Well-being in teachers. This study analyzed peer-reviewed journals to identify effective programs that supported the Well-being of teachers.

Table 3 shows the programs and their characteristics of the scrutinized studies.

Program Title	Program Characteristics
Gratitude program	This program focused on the effects of gratitude and forgiveness on the Subjective Well-being of teachers which showed that forgiveness predicted the negative experience of emotions and attributes to reduced teacher burnout [43].
Gratitude Intervention and Coping Intervention	This program used a technique called "count-your-blessing" which showed improvement in Life satisfaction and gratitude-oriented emotions [44].
Cultivating Awareness and Resilience in Education (CARE For Teachers)	CARE program for teachers focused on three major areas such as developing emotional skills, mindfulness practices, and caring &listening practices. It helped teachers overcome stress and improve their Well-being [45].
Gordon's Teacher Effectiveness Training	This training program focuses on listening skills, positive I-messages, and supporting autonomy which showed improvements in the Well-being of teachers [46].
Comenius Program	The Comenius program used the "Feeling good tools" based on the learning organization model to improve the Occupational Well-being of teachers [47].
Emotional Intelligence Training Program	This program focused on improving the Well-being and Mental health of teachers by addressing self-awareness, self-management, and awareness of others [48].
Chill And Chat Program	The Chill and Chat program focused on improving the Well-being of teachers which helped teachers improve their perception of well-being and effectively improve their work relationship with colleagues [49].
Autonomy-Supportive Intervention Program	This program focused on improving autonomy support among teachers through expert modeling, responsive mentoring, indirect vicarious experience, and direct experiences [50].
Learning To Read in A Healing Classroom	This program used socio-emotional learning techniques to improve teachers' job motivation and counteract burnout [51].
Mindfulness-Based Programme	The Mindfulness-Based Programme included physical exercises, body scans, well-wishing, and everyday mindfulness practices to improve well-being [52].
Stress-Coping Program	This program focused on wide areas such as attention, thoughts, and self-compassion to reduce stress and improve mindfulness and well-being [53].

Program Title	Program Characteristics
Yoga Training	This program used various Asanas such as Tadasana, Arthakadi Chakrasana,Vajrasana, etc., and breathing techniques to improve well-being [54].
Job Demands-Resources (JD-R)	This program focused on improving job crafting and work satisfaction via basic need satisfaction [55].
Achiever Resilience Curriculum (ARC)	The ARC program focused on various facets such as mindfulness, values, gratitude, sleep hygiene, etc to support and improve teachers' well-bring [56].
Four Pillars of Wellbeing curriculum	This program is based on four major pillars in positive psychology: mindfulness, self-curiosity, community, and contentment & balance [57].
Cognitive training	This program focused on well-being through cognitive activities and action plans to help teachers related to community related values [58].
CALMERSS	This program focuses on multi-dimensional aspects such as cognition and automatic thoughts: learning to relax; mindfulness; exercise; resolving conflict; strengths and positive psychology; sleep (CALMERSS) to improve well-being [59]
Strength-based programs	It focused intensely on improving character strengths thereby improving engagement, need satisfaction, and relatedness to others [60].
Positive psychological interventions	The concepts of emotional intelligence, time management, gratitude, and other positive psychological interventions were focused on by this program [61].
Psychological Counseling and psychosocial intervention	This is a multilevel intervention with psychological counseling, psychological interventions, and environmental redefinition [62].
Compassionate Mind Training (CMT) program	This program used techniques based on grounding, mindfulness, and compassionate imagery to cope with stress and burnout [64].
Professional learning programme	The major focuses in this program were resilience, stress management, building relationships, effective teaching, emotional well-being, classroom management, and education for well-being [65].
Mindfulness program	This program solely focused on improving the mindfulness skills of teachers to improve well-being and reduce stress [66].
Teacher Classroom Management program	It is a program based on cognitive social learning and relationship improvement through an emphasis on classroom management [67].
Mental health training	This program focused on training teachers in mental health first aid, awareness to support mental health, and peer support [68].
Inquiry-Based Stress Reduction (IBSR)	IBSR program was based on improving skills of observation, empowerment, cognitive reframing, and self-exploration [69].
Audio Podcast-Based program	The program consists of nine audio podcast episodes and three positive psychological interventions such as gratitude, kindness, and savoring [70].

All the above-mentioned programs have a significant impact on the Well-being of teachers. To summarize, predominantly positive psychology programs and mindfulness-based programs were used in combination with other approaches to improve Well-being. Positive psychology focuses on feeling the best about life and its events [72]. These programs focused to a large extent on self and brought out results in the subjective and occupational Well-being of the individuals. The effectiveness of these programs and their suitability for teachers' Well-being is ambiguous. The programs, though have some similarities, are different in lots of paradigms, such as the variables. The studies by Cheon and Chan showed Well-being as a lack or better handling of stress and limiting emotions whereas the existence of promoting factors led to Well-being in studies by Cook, Bradley, and many others. The studies by Saaranen in 2013, Laine in 2018, and Rahm in 2019 were the ones that showed the long-term effects of the programs. From this review, we can infer the benefits each program aids Well-being but there are no definite ways to evaluate the benefits of all the programs, as the target population is teachers from different backgrounds.

Conclusion, Limitations, and future research

The Well-being of teachers supports teachers in personal and professional functioning. The programs addressing Well-being support teachers in becoming efficient and helps them better

cope with limiting situations. This study specifically focused on various programs that aid teachers' Well-being and other facets that affect Well-being. The COVID-19 pandemic has impacted all but as the handlers of the future generation, teachers' Well-being needs to be addressed with care. Being aware of the programs used in a 10-year period allows us to infer the availability of the faculty development programs and the benefits that come along. It should be noted that though the programs showed significant effects, Well-being remains a process that requires constant addressing. The Well-being of teachers is not a factor that's either present or absent, it depends on numerous paradigms. Hence, the concept of Well-being needs approaches that combine the array of factors contributing to it [73].

Although this study is conducted to understand the Well-being of teachers, it explores only at the level of teachers' perspective. The effect on teachers, their performance, career, and personal improvements are impacted by the programs, but their absolute effect on students and administration is still under question. This study focused on the developmental programs that help teachers' Well-being, but the role of teachers to maintain their Well-being by using the programs needs to be explored. This study addresses a period of 10 years of teachers from various educational levels and types. This allows future researchers to address vast programs without degrading them based on the level of the target population. Through this study, we can understand the significance of teachers' Well-being and the use of faculty development programs. Nevertheless, there lies the need for a basic approach to address the Well-being of teachers. In regards to this review study, there are heterogenous range of programs that supports the Well-being of teachers.

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