



Research Paper

The effects of meditation on students in High School Classroom

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ABSTRACT

Adolescence, with both its well-known opportunities and risks, is considered one of the most complex periods of life. This has been more and more noticeable with regard to the changes in the modern living conditions, where experiencing the best and the worst of life has become easily accessible for today's youth.

The practice of mindfulness activities is a current issue, which has gained great scientific and educational enthusiasm. This method seeks to improve the mental state and the individual well-being of the student to obtain a positive advantage effect on their attitude and academic performance.

Our present work aims to assess the extent to which the practice of mindfulness meditation, inspired by Eline Snel's program, helps to develop a student's sense of well-being.

Two research hypotheses were retained: meditation allowing the awakening and the development of a feeling of well-being in the students; and its ability to help them fight against the feeling of stress.

At the end of this study, the results obtained tangibly demonstrate the awakening and development of a feeling of well-being as well as an overall reduction in the feeling of stress in the short term.

However, this work has undoubtedly certain limitations and, therefore, opens up further study perspectives with the possibility of improving the tool and the protocol in order to be able to invalidate or confirm the conclusions of our research.

Keywords: Student, meditation, mindfulness, stress, well-being.

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I. INTRODUCTION

The idea of approaching the theme of meditation in the school setting, and especially for adolescents, attracted my attention quite quickly when I noticed the physical and psychological state, in which the students would arrive to school and how they manage to spend their whole day there. A number of them often seemed exhausted, nervous and worried. They surely were in a state that is not very conducive to listening or acquiring knowledge. I then wondered about the possible ways, which would make those students more cognitively alert and more receptive to learning.

For several years, I on a personal level have been able to enjoy the benefits of meditation, which I practise on a daily basis. Beside the assured general well-being, these practices help me better mobilize my energy and my intellectual capacities, as well as loosen the grip of stress. In addition, I was able to help many people to improve their personal and professional lives thanks to this technique.

A technique advocated by oriental wisdom, which has aroused the interest of neuroscientists and psychologists, because it promotes a mental state fighting stress and depression.[1]

So how could the practice of so-called mindfulness meditation in the classroom contribute to the development of the adolescent's (student) sense of well-being? In addition, how can it, consequently, help him to be in a state conducive to learning?

To answer this question, we will first tackle the initial inquiry that had inspired this research. We will then detail the keywords used in our study in order to have a definition and a clear vision of these terms. Then, we will develop the scientific framework of the effects and mechanisms of meditation; and we will deal with meditation within the educational framework. Finally, in the last step, we will detail our research methodology and we will discuss the data collected. Then our conclusion will lead to opening our subject to different research perspectives.

1-Definition of mindfulness :

Mindfulness "consists of bringing your attention back to the present moment" [2]. A pillar common to many cultures, mindfulness is this natural capacity with which every human being is endowed, allowing him, at any time, to broaden his attention and fully live the experience which is his [3].

More so, it is a state of being which develops through proper training of the mind. Developed to relieve human suffering, the meditative practices lead to this state. Mindfulness can be defined "as the state of consciousness that results from paying attention, intentionally, to the present moment, without judging the experience unfolding moment by moment [4].

2-The different techniques of mindfulness meditation

Let us now present (in a non-exhaustive way) different meditations, called mindfulness, applicable in school and in medical settings.

MBSR (KABAT-ZINN)

Today mindfulness is meeting a growing interest in particular thanks to Jon Kabat-Zinn (American professor of medicine and psychologist) who in 1979 initiated the Mindfulness Based Stress Reduction program. It is an eight-week meditation-learning program, which aims to make this pedagogy accessible to all. This approach allows individuals to "live the present moment more intensely, while combating anxiety, stress, illness and pain" [5]. At the same time, it is a "technique of well-being or even personal development"[6].

THE MINDUP PROGRAM (GOLDIE HAWN)

G. Hawn developed the Mind Up program in collaboration with neuroscientists and psychologists in the United States [7]. Implemented in hundreds of schools in the United States, it aims to help children become more mentally strong so they can grow in less anxiety. G. Hawn considers that the energy mobilized by children to silence their negative thoughts cannot be invested in learning.

CALM & REST LIKE A FROG or ATTENTION WORKS (ELINE SNEL)

Eline Snel - known since her 2012 bestseller *Calm and Mindful as a Frog* - is a pioneer in the field of mindfulness meditation in school. During her paramedical career as a nurse, she undertook to study the work of J. Kabat-Zinn, which she decided to adapt to hospital and then to school.

3-Adolescent well-being and stressors

Well-being would be a mixture of internal sensations, dispositions, relationships with others as well as all the feelings that this would cause in the individual.

The WHO (World Health Organization), meanwhile, defines it as "a state of complete physical, mental and social well-being, does not consist only of the absence of disease or infirmity". This implies that health (the state of being in physical health) enables one to have full capacity.

According to psychiatrist André, "stress" is normal. It would be a body-to-mind response to an "assault" from outside. It is "the body's response to a situation that is uncontrollable, unpredictable, new and / or which poses a threat to our ego" [8]. A more or less reactive adolescent who is prone to anxiety (an individual's tendency to amplify the situations they find themselves in, as well as their own feelings about them) will develop states of stress more frequently. Stress could be summed up as the fear of being afraid. Among the stressors found in adolescents, school stress is one of the main triggers of this state [9]. When the adolescent is asked to surpass his intellectual and / or physical capacities his state of stress would increase significantly.

Adolescence is the phase when physical, psychological, emotional, social and sexual changes lead the adolescent to adulthood. These intense changes are orienting him towards autonomy, which is one of the main characteristics of adulthood. However, it retains a contradiction, that of the essential quality of emotional security provided by adults [10].

This is how interactions between students, with parents, interlocutors and the entire organization of the school system (time and means of transport, timetables, class, etc.) can become stressors for adolescents. .

Finally, to complete, according to Dr. S. Lupien [11], founder of the Center for Studies on Human Stress (CESH), anxiety "is the fear of being afraid, caused either by a personality trait, or else by a temporary state".

II. METHODOLOGY

1-Protocol

To practice mindfulness meditation in school, we relied on Eline Snel's method [12] called "Mindfulness Works!".

The choice fell on this type of method for its recency, its ease of implementation and modulation for efficient use in class.

The purpose of this meditation exercise is to develop the well-being of the learners to better understand the entry into the learning process by leaving behind the door of the classroom what may have happened outside.

It gives them the tools to better understand and calm their teenage emotions, which can sometimes be seething, and to learn not to be overwhelmed by them. "Playful and non-competitive, they develop self-confidence and respect for others" (Snel, 2013).

2- Participants and context:

The population studied consists of one mixed class of Baccalaureate option Physics Sciences of 39 students aged 17 to 19 in a public high school in Morocco.

It did not take me much time to become aware of the lack of involvement from the part of the students in the required tasks, and of the systematic waste of time and effort witnessed in attempting to put themselves in a listening position necessary to follow the lessons being taught. The lack of attention following a break time was becoming problematic, and their tiredness during learning became worrying.

In the school context and as far as the learning pace is concerned, the student must adapt to situations as well as to places that vary almost hourly throughout the school day. This necessitates from the learners many attentional, postural (immobility, posture sitting on a chair), social (in work and living together), organizational (institutional constraints) and emotional requirements.

The teacher, on the other hand, has to fulfill the double role of imparting knowledge while at the same time managing all these limitations at any time of the day. It would therefore seem easy to notice the hindrance these complexities constitute to learning or even to educational situations.

As a result, the class atmosphere tends to focus too systematically on enforcing discipline rather than on the transmission of knowledge. This required an urgent step back and an analysis of the situation to find tools to overcome these difficulties.

3- Implementation Presentation:

It was necessary to present to the pupils the experimental methods, which were going to be implemented, their contents as well as their objectives.

The stages of the practice:

Details of the steps presented to the students for the good practice of a mindfulness meditation session.

1. Posture: sitting on a chair with your back straight;
2. Practice: pay attention to yourself, your body (application of breathing exercises);
3. Reconnection: time to reconnect in the present (in class);

Suggested exercises:

During the first four weeks of the school year, the students were chosen according to their wishes, using existing methods (Eline Snel method).

It is important to specify that the methods actually put in place are the result of collaborative work or collaborative creation with the students.

To arrive, in collaboration with this class group, to a method adapted to their needs, we carried out several tests.

4-The methods:

A- Attention to breathing (performed once) (duration: 9 minutes)

The exercise according to E. Snel is, as its title suggests, a good way for students to focus on their breathing and learn to react less impulsively to their feelings. It is about exerting influence over one's inner world "without condemning something that is happening there and without trying to push it away" [p.49]. By being present to their breath, children "discover how easily ideas and representations about the next day appear and disturb attention."

B- The pause button (performed 3 times) (duration: 4 minutes)

The goal of this exercise is to stop the mental ruminations as well as the associated and consequent sensations such as stress or fear of the student. It is about becoming aware of the state of his "inner weather" and thus helping him to accept their feelings, as they are so as not to react to them impulsively. They arise, sometimes they stagnate, then they pass"[12]. Learning in this way to better understand one's emotions, to observe them during a break, makes it possible to accept them more easily and therefore to overcome the hold they have on their mental state. Another aspect of the exercise consists of shifting one's attention from focusing on breathing to focus on the back and forth motion, without trying to describe it by any kind of adjectives. Then, the last part gets the students to fix their attention on the part of the body of their choice where a pleasant or unpleasant sensation can be perceived and targeted. The exercise ends with a stretch in order to dilute the tensions which may have been expressed by a certain muscle tension..

5- THE QUESTION OF TIME

- When? The exercises were carried out in the morning, after entering the classroom and consulting the administrative connection book.
- How long? The sessions lasted a few minutes, the meditation time never exceeding 10 minutes.
- Over what period? The experiment extended from December 06, 2019 to January 06, 2020, therefore over an effective practice time of 4 weeks. During these 4 weeks, 8 meditation sessions were offered (an average of 2 per week).
- Where? The meditation sessions were performed within the classroom. Students were encouraged to sit comfortably in their seats, reminding them to keep their backs straight and not to lie down on their tables. Indeed, meditation requires a certain posture in order to make the best use of the airways, which will be very strained during the exercises. We arranged for the students to have as much space as possible by having them all over the class and so that they did not have a classmate in front of them. Indeed, eye contact might cause sneering looks and smiles, symptoms of loss of attention.

6- THE QUESTIONNAIRE

To quantitatively measure the impact of mindfulness on individual well-being, I used two questionnaires, the second questionnaire taking up all the questions from the first, adding only questions 8 and 9 on the feelings observed during the meditations. . The purpose of these two questionnaires was to measure the evolution of the condition of the students, by comparing their level of well-being before and after the establishment of the meditation sessions.

A) Composition of the questionnaire

The objective of our study was to assess the state of well-being of the students before and after they had benefited from short meditation sessions. Indeed, each question was associated with a multiple choice of answers. The students having to circle what corresponds to them so that these answer choices are not only focused on a negative side (such as nervousness, fatigue or stress) since they also include indicators of positive sensations (such as contentment, calm or even joy and pleasure). The presence of these indicators will thus allow a more objective assessment of whether or not mindfulness meditation has generated genuine well-being. Let us not forget that the absence of negative sensations does not necessarily demonstrate the presence of positive sensations (therefore of well-being) and vice versa. One item also aimed at discovering the side of the individual's well-being from the point of view of his social relations. This allows us to see whether the mindfulness exercises have had a positive effect on interactions between peers, presupposing the presence of a certain individual and / or collective well-being (in other words of a harmonious class climate and therefore conducive to learning).

7-Explanation of the questionnaire to students

This point is fundamental and will require careful thought in our discussion section on how to explain the tool without influencing the students in their answers. The first step was to read all the questions as a whole class. Then detail the keywords together and find synonyms to best define certain sensations. The students were of course able to ask questions about the tool. For the second quiz, a mindfulness meditation exercise was performed before answering the questions, moving from one question to another after the whole class had answered.

III. RESULTS

1- Analysis of the responses to the questionnaires

Question 1: How do you feel when you arrive to school?

Questionnaire 1	Questionnaire 2	Students' feelings
11	8	Tired
6	4	stressed
3	2	angry
11	11	Calm
13	15	happy

- The feeling of fatigue has decreased by 25%. Nervousness by 50%. That of stress by 40%.
- The feeling of contentment has increased by 27%.
- There is a stagnation of the feeling of calm.
- We will also note - although beyond our subject focused on well-being - the large percentage (almost 44%) of students indicating that they arrive in a state of fatigue at school.

Question 2: How do you feel when you are in class?

Questionnaire 1	Questionnaire 2	Students' feelings
7	6	Tired
4	2	stressed
4	4	angry
7	8	Calm
11	13	happy

- There is a decrease in feelings of fatigue (-40%) and stress (-16.7%).
- There is a stagnation of the feeling of nervousness.
- We also observe an increase in the feeling of contentment of 14.3% and calm of 27.27%.

Question 3: Do you ever get furious or angry with your classmates?

	Q°1	Q°2	Evolution
never	10	4	- 60 %
sometimes	14	14	/
often	6	2	- 66, 7 %
very often	1	5	+ 400 %

- There is a 60% decrease in the absence ("never") of feelings of anger or nervousness among peers.
- A stagnation of the punctual frequency ("sometimes").
- A decrease of 66.7% also of the ordinary frequency ("often").
- A 400% increase from a very regular ("very often") frequency.

Question 4: how do you feel at the end of the day?

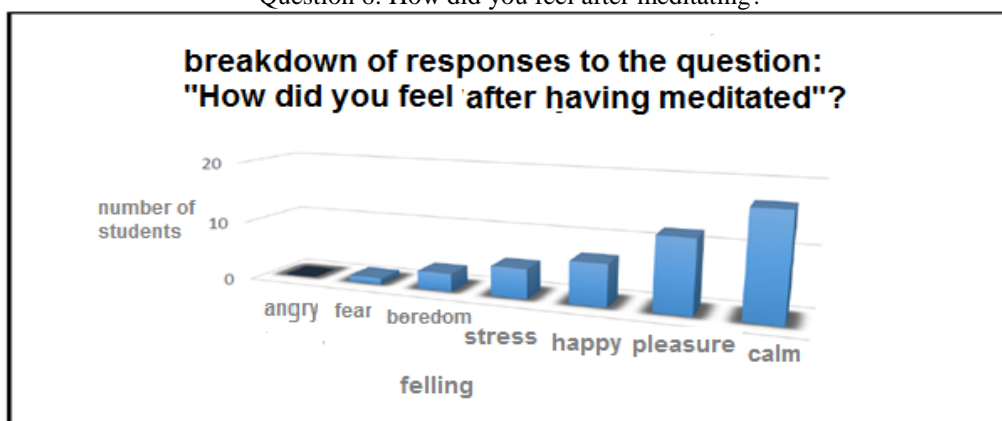
Number of students		
Questionnaire 1	Questionnaire 2	Students' feelings
16	10	tired
2	4	Stressed
3	5	angry
4	4	Calm
6	13	happy

- The feeling of fatigue has decreased by 40%.
- The feeling of contentment increased by 77.8%, while that of calm stagnated.
- Feelings of nervousness increased by 40% and feelings of stress doubled.

Question 5: How did you feel when you meditated?



Question 6: How did you feel after meditating?



We note that the students felt anger at 2.4%, fear at 4.9%, boredom at 7.3%, and stress at 9.76%. They also felt 12.2% joy, 39% calm, and 21.9% pleasure.

IV. DISCUSSION

Question 1: How do you feel when you arrive to school?

If we complement the decrease in negative sensations indicating the absence of well-being (decrease in the feeling of fatigue by 25%, that of nervousness by 50% and that of stress by 40%) and the slight increase in positive sensations indicating the presence of well-being (with a feeling of contentment increased by 27.27%), it would seem legitimate to estimate, despite the stagnation of the feeling of calm, that meditation had a beneficial effect on the psychic behavior of the students by improving their feeling of well-being when they arrive to school.

Question 2: How do you feel when you are in class?

With a decrease in the feeling of fatigue by 40%, in that of stress by 16.7%, the stagnation of the feeling of nervousness, and an increase in the feeling of contentment by 14.3% and calm by 27.27%, it also appears legitimate to conclude that there has been a real increase in the feeling of well-being of students in class.

Question 3: Do you ever get furious or angry with your classmates?

There have been mixed or even negative results for this question, not supporting the idea that meditation can improve the feeling of social well-being (peaceful and benevolent relations between peers). Indeed, there is a decrease in the absence of anger ("never") or nervousness compared to other items, and a strong increase (multiplication by 5) of a feeling of anger or recurring nervousness ("very often"). In conclusion, it would seem that the meditation sessions did not help resolve difficult or even conflicting relationships between peers.

Question 4: how do you feel at the end of the day?

The feeling of tiredness decreased by 40% and, at the same time, the feeling of contentment increased by 77.8%, while the feeling of calm was stagnant. Conversely, there is an increase in the feeling of nervousness by 40% and the feeling of stress by 200%. We can therefore conclude that mindfulness meditation did not allow, throughout one single day, to maintain the feeling of well-being. We will discuss the potential reasons for these results later.

Question 5 (how did you feel when you meditated?) And question 6 (how did you feel after meditating?):
- Regarding the negative sensations that appeared during meditation, the students felt 11.4% stress, 2.3% anger, while no one felt fear. Add to that a boredom rate of 6.8%. But in fact, we mainly see that meditation generates sensations in the students indicating well-being with 27.3% calm, 15.9% joy and 38.6% pleasure. Indeed, negative sensations accumulate 20.8% of feelings, while positive sensations represent 79.2% of feelings. With regard to this balance, we can conclude that the exercise of meditation could have brought, at the time, a feeling of effective well-being.

- Regarding the negative feelings felt after having meditated, the students experienced 2.4% anger, 4.9% fear and 9.76% stress. Add to that a boredom rate of 7.3%. It is mainly observed that meditation generates sensations indicating well-being for students, since they felt 39% calm, 12.2% joy and 21.9% pleasure. Indeed, negative sensations accumulate 17.6% of feelings, while positive sensations represent 82.94% of feelings. With regard to this balance, we can conclude that the exercise of meditation brings a posteriori a feeling of effective well-being.

It should be noted that the students mainly emphasize the pleasure and the joy experienced during meditation, rather than a feeling of serenity ("calm"), while this ratio is seen reversed after leaving the meditation. We will also notice the total absence of feeling of fear during the exercises, which is rather positive and confirms the absence of deep discomfort caused by mindfulness activities.

Mindfulness therefore seems to cause a feeling of well-being in two stages, bringing first a feeling of bliss before giving way to a feeling of serenity.

V. CONCLUSION OF RESULTS AND EVALUATION OF RESEARCH HYPOTHESES.

Based on the results of our study, we cannot absolutely admit the effectiveness of mindfulness meditation. However, it should be noted that the majority of students feel, during and just after the exercises, positive feelings indicating the presence or at least the awakening of a real well-being. The first hypothesis of our research - that meditation allows the awakening and development of a sense of well-being in students - therefore seems to be validated. Indeed, if we take the average of the sensations expressed in questions 5 and 6, we obtain a rate of 19.2% of negative sensations against a rate of 80.8% of positive sensations. These data should be compared with the conclusions of [13], which recorded an increase in children's well-being by 52% and an increase in the feeling of calm by 82% at the end of the meditation cycle. Our results also confirm the conclusions of the study of the MindfulKids program carried out by L. Barriault [14], which advocated a general improvement in well-being. Our observations support those of K. Schonert-Reichl [15], who assures that mindfulness meditation is able to promote a feeling of well-being (by self-evaluation), as well as those of ElineSnel on the capacity of students to feel more calm in the classroom [12].

As for the second hypothesis suggesting that meditation helps to combat feelings of stress, the results are less definitive. Stress was reduced by 40% on entering school (from 5 to 3 students), by 25% in the classroom (from 4 to 3 students). These data therefore confirm the studies previously carried out [12], [15] and [14] which ensured the stress reduction capacity of mindfulness exercises. But stress at the end of the day has, on the contrary, increased (three students in questionnaire 2 instead of one in questionnaire 1).

Mindfulness activities therefore seem to be able to reduce stress but only in the short term. In addition, during and immediately after meditation (questions 5 and 6), stress represents a choice average of 10.58% of the answers. It is, therefore, not possible to say or deny in a clear and definite way that mindfulness meditation has reduced stress for students.

Finally, it should be noted that relations between peers have not improved. These results thus contradict the previously detailed data on the ability of students to maintain harmonious social relationships with their peers [K. Schonert-Reichl - 2015] through mindfulness activities. Children do not seem to have shown greater kindness towards their peers, contrary to the data noted in the [13] and the work of ElineSnel [12].

VI. CONCLUSION

The object of the study of meditation in the school context is a real challenge for the future and, in my opinion, a real issue. Constituting the subject of significant enthusiasm among educational practitioners and of a strong but still new debate in the context of research, mindfulness practices still require conducting further investigation to be able to impose itself as a pioneer field of study at the service of teaching in the future

where the educational needs would no longer be placed at the service of the results (of the student) but of the engine generating these results (the individual) by acting on their well-being . Mindfulness will also have to meet other challenges such as the training of practitioners in the field of education, the involvement of parents, constraints related to teaching time, as well as more prosaic issues related to the quality of the systems. (room and equipment). Either way, mindfulness-inspired intervention practices are showing promise and certainly have a bright future ahead. Indeed, mindfulness techniques can be used "not only in the classroom, but also by anxious parents of students, who can apply them at home" (Hubert, 2014).

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