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Capítulo 6

Mindfulness Training for Music Education University Students

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I. INTRODUCTION

In recent decades, education has found itself at the service of neoliberalism in that it must promote business criteria as an ultimate objective (Roguero, 2014; Vega, 2014). This has led to a growing precariousness for some knowledge areas, in particular the humanities and some of the social sciences (López, 2019; Rodríguez-Quiles, 2019, 2021). The values of this system combined with an exponential increase in knowledge has led to the emergence of what it referred to as the knowledge economy, where innovation and competitiveness have taken on predominant roles in education (David & Foray, 2002) as both promote research and development. This situation has caused the difficulties of obtaining a job to reach new heights (Díaz-Corchuelo *et al.*, 2015), creating a state of constant acceleration for university students in their day to day life obligations and the challenges of mastering the wide range of required skills.

The massive proliferation of technologies together with the media have not only contributed to a process of change and social transformation that is still latent (Cózar *et al.*, 2015), but has also given rise to a great variety of stimulation which must be overcome in order to interact with it. This has increased the *monkey mind*, a mind that jumps from thought

to thought (Moret *et al.*, 2016) and even feelings of nonconformity. The transcendence of this question is even greater in the field of education, where conditions such as attention, acceptance and stress of the individual can end up having an effect on a student's academic performance. In response to these factors, practices that aim to stimulate or achieve greater physical, mental or emotional control have increased in recent years, amongst which the growing trend of mindfulness stands out. According to Mañas *et al.* (2014), mindfulness has proven its effectiveness and usefulness in diverse contexts: clinics, family, sports, business, prison, education... Focusing on the area of education, various studies have shown that mindfulness contributes to improvements in academic performance (see Beauchemin *et al.*, 2008; Hjeltnes *et al.*, 2015).

A literature review on the combination of mindfulness-music reveals a series of implications in music education, opening the door to a relatively unmapped territory. Taking as a premise that mindfulness is the metacognitive ability to regulate the processes of attention, concentration and consciousness (Bishop *et al.*, 2004), this study focussed its interest on testing the effects of mindfulness on academic achievement for students in the Music Teacher Training (MTT) programme at the University of Granada (Spain). In this programme, auditory sensibility, understanding of musical structures and forms, vocal and instrument performance and coordinated movements (dance, choreography, body percussions) constitute the bulk of the evaluation, and therefore performance determines academic results.

II. THEORETICAL FRAMEWORK

2.1. SCIENTIFIC EVIDENCE OF MINDFULNESS IN THE REALM OF EDUCATION

Although mindfulness is deeply rooted in Buddhism, the practice has been separated from its original cultural, religious and ideological factors (Lynch & Wilson, 2018). It is relevant to point out as well that mindfulness is not limited exclusively to the practice of meditation nor do all types of meditation include mindfulness (Mañas *et al.*, 2014). Mindfulness has been described as "the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment" (Kabat-Zinn, 2003, p. 145). For Snel, "mindfulness is nothing other than being consciously present, wanting to understand what is happening with an open and friendly attitude, without judging, ignoring or being pulled away by the

everyday bustle" (2010, p. 21). Mindfulness is also connected to a lifestyle, and therefore it is not merely a practice but rather an attitude, a philosophy of life that influences how one deals with the ramblings of the mind and problems themselves (Delgado, 2009; Mañas *et al.*, 2014). In contrast, several authors argue that there is no universally accepted technical definition, nor is there widespread agreement on detailed aspects such as content and structure. This inevitably gives a certain ambiguity to the concept (Lynch & Wilson, 2018; Van Dam *et al.*, 2017). Although there are many meanings that can be associated with the term mindfulness, there does appear to be general agreement that it is not a mere concept that can be easily described and internalized by the rational mind. Rather it needs to be lived and experienced to understand its true meaning, as well as the multiple effects that can emerge through its practice (Delgado, 2009; Martín, 2017; Snel, 2010).

Authors such as Shapiro, Brown & Astin (2008) group the effects of mindfulness in education into three areas: cognitive and academic performance, psychological wellbeing and the development of the whole person. Among the effects associated with cognitive and academic performance, there is evidence that mindfulness increases the ability to maintain and direct attention (Jha *et al.*, 2007; Tang *et al.*, 2008). When trapped in a cycle of rumination, a mindfulness practice can progressively increase the ability to process information rapidly and effectively (Slaghter, cited in Mañas *et al.*, 2014), as well as improve psychological well-being (Brown & Ryan, 2003). Thus, mindfulness can reduce levels of stress, anxiety and depression for both teachers and students (Franco, 2009; Franco *et al.*, 2009), preventing increases in burnout rates in these sectors. In turn, it allows improvement in emotional regulation as well as the cultivation of positive psychological states (Baer, 2003; Britton *et al.*, 2015). Finally, mindfulness can have an impact on the development of the whole person, a fundamental aspect in the pursuit of a balanced and quality education. In this sense, the practice contributes to the development of creativity (Baas *et al.*, 2014; Newton, 2015) and can improve the development of necessary skills in interpersonal relationships primarily due to decreases in anxiety. It also allows for the development of empathy in individuals (De la Fuente *et al.*, 2010). For these reasons, it can have a positive impact on classroom culture and student-teacher relations (Czajkowski & Greasley, 2015; Moret *et al.*, 2016). In conjunction with these areas, other studies have shown how mindfulness contributes to reducing anxiety and improving academic performance in primary education students with learning difficulties (Beauchemin *et al.*, 2008). Likewise, Hjeltnes *et al.* (2015) highlights that after applying the programme *Mindful Based Stress Reduction* (MBSR),

university students are able to reduce their stress levels, stay focused on their own learning and improve their performance in different situations.

2.2. THE RELATION BETWEEN MINDFULNESS AND MUSIC EDUCATION

The ability to focus attention in music education is primordial as according to Trives-Martínez *et al.* (2014), "the temporal linearity of sounds demands rigorous attention. Musical phrases flow, rhythmic patterns follow one other, the music flow does not stop, so a symbiosis between movement and attention is necessary" (p. 1071). Music instructors such as Martenot, Jaques-Dalcroze, Kodaly, Willems, Orff, or Suzuki, among others, have placed emphasis on the corporal aspects of proposing music experiences (Trives-Martínez *et al.*, 2014; Moret *et al.*, 2016). Nevertheless, no methodology deals directly with attention, instead it is dealt with through the different teaching activities chosen to work sound parameters, rhythm, hearing, intonation and body percussion. With the emergence of the BAPNE method (acronym for Biomechanics, Anatomy, Psychology, Neuroscience and Ethnomusicology), the relation between the double concept attention-music practice is presented in a direct and systematized way (Crespo-Colomino *et al.*, 2014; Pons-Terrés *et al.*, 2014). However, only in Performative Music Education (Rodríguez-Quiles, 2017, 2018) is special attention paid to the practice of mindfulness with the intention of increasing the perception, attention and communication of the class-group.

According to Serrano and Amaral (2017), dance and music practice as well as mindfulness can be conceptualized in a similar manner due to their focus on the present moment. This idea is reinforced as they share areas of the brain that are activated in mindfulness practice. Mindfulness uses the anterior and posterior cingulate cortex, cuneus, corpus callosum, cerebellum, hippocampus, putamen, amygdala and insula. In particular these last two (Marchand, 2014; Taylor *et al.*, 2011), are similar to those activated during music practice and dance (Hänggi *et al.*, 2010). Corporal expression, acts such as mimicking, expression and dance are difficult to achieve without a full state of concentration allowing the ability to feel one's own body. According to Choque (2013), one needs a "preparation of the body not to warm up the organism, but to become conscious of oneself, to circulate energy through the body, to focus, to be present in the here and now, to be prepared to live each proposed experience fully" (p. 89). Even for hearing, attention and consciousness are fundamental and distinct acts of the process that ultimately allow an increase in pleasure or well-being.

Investigations in the field of music have focussed attention on the construct of mindfulness as a method to enhance music performance. According to academic literature, mindfulness positively enhances hearing and music sensitivity, leading to an increase in pleasure (flow situation) (Auerbach & Delport 2018; Díaz, 2011; Todd, 2016). The practice has important effects on singers, who are able to achieve greater micro-muscular and breathing awareness, which contributes to their vocal tuning. Additionally, it permits greater focus and concentration on lessons and music practice as well as increasing person well-being (Czajkowski & Greasley, 2015; Lynch & Wilson, 2018). Parallely it has been shown that mindfulness can influence music creativity by increasing expressiveness. This translates into a more open and intuitive composition process when creating music (Newton 2015). During a music act, an elevated cognitive effort is required that in many occasions ends up causing intrinsic disturbances that affect access to information required in the present moment (interpretation, coordination). However, in more extreme cases, according to Luoma & Hayes as cited in Serrano & Amaral (2017), there may be cases of *experiential avoidance*, causing internal discomfort and defensive behavior to try to avoid an event considered negative. According to Farnsworth-Grodd (2012), a notorious proportion of musicians use alcohol, medicine and illicit drugs to alleviate music performance anxiety or 'stage fright'. Meditation and mindfulness are alternative therapies that can address and decrease music anxiety (Farnsworth-Grodd, 2012; Diaz, 2018; Lin *et al.*, 2008).

2.3. STRESS PERCEPTION IN THE UNIVERSITY CONTEXT

Adaptation to the European Higher Education Area brought with it new study plans, new degrees, a more profuse use of ICT (Information and communications technology), as well as the specific requirement to be proficient in foreign languages (Díaz-Corchuelo *et al.*, 2015; Mairal, 2010). Combining this with the current labour instability[1], it has translated into a situation of continuous stress for students in the belief that they will never be able to attain the position they desire due to a lack of experience and/or training, or even the ability to attain job opportunities of the future (Cabanach *et al.*, 2016; López, 2019).

According to Campo-Arias *et al.* (2009), stress is a physical and psychological response to the demands and threats of the environment. Thus, responses to stress are very entwined with individual, social and cultural aspects that influence the perceived experience for each person. However,

1. This study was carried out prior to the outbreak of the COVID-19 pandemic.

stress can have repercussions at more than the individual level, maintains Díaz-Corchuelo *et al.* (2015), it can produce a domino effect and become a determining factor in the quality of life of the family environment as well.

According to Muñoz (cited in Cabanach *et al.*, 2016), there are three large stressor groups in academic life circumstances that generate the highest stress levels for university students. These are: (a) evaluation processes; (b) work overload; and (c) conditions of the teaching-learning process itself, such as social relationships, methodology and organizational components (scheduling problems, overlapping programmes). Lazarus and Folkam (cited in Cabanach *et al.*, 2016), include other more specific academic situations such as excessive self-study by a student, problems combining academic life with personal life, the absence of free time or the demands of maintaining high levels of attention and concentration for many hours. Given the numerous leaves of absence in the teaching sector (Franco *et al.*, 2009) and the severe cases of stress in the student sector as previously described, it has been proven that the induction of a mindfulness practice can significantly reduce perceived stress levels in individuals (Campo-Arias *et al.*, 2015; Franco, 2009). Considering the continuous stress which university students are subjected to, the role this plays in learning, as well as the multiple benefits derived from the induction of mindfulness on music performance, the present investigation aims to analyze the effects of mindfulness practice on university students of the MTT, with regard to their academic performance, stress levels and mindfulness state.

Our working hypothesis and point of departure is that the groups undergoing a mindfulness-based training will (a) significantly improve the depth of mindfulness state achieved in comparison to the control group not participating in the training; (b) significantly improve the perception of their stress levels as compared with the non-participating control group; and (c) show levels of academic performance superior to those of the control group.

III. METHOD

Fifteen MTT students ranging from 20 to 27 years (M=22 and SD=1.92) participated in the investigation[2]. Of the three established groups, experimental group I (E.G.I.) went through a mindfulness training in class and at

2. This work was carried out with students of Music Teacher Training programme. All participants provided their written informed consent to participate in this study. The authors thank all of them, as well as B. de Rueda and C. Verdejo for their support and guidance.

home; experimental group II (E.G.II) only practiced mindfulness at home; and the control group (C.G.) did not receive any training. Each group was composed of five participants: three women and two men. This investigation used the Spanish version of the *Five Facets Mindfulness Questionnaire* (FFMQ), validated by Aguado *et al.* (2015) and based on the original developed by Baer *et al.* (2006) to analyze the effects of mindfulness induction on the students. The questionnaire assesses five facets of mindfulness: (a) observing, (b) describing, (c) acting with awareness, (d) non judging, and (e) non-reactivity to internal experience. It consists of 39 items, which are scored on a five point Likert-type scale from 0 (never) to 5 (very often or always true). In the study with a Spanish sample by Linares, Estévez *et al.* (2016), the questionnaire offered good indexes of internal consistency ranging between .71 and .82.

To measure the degree of student stress, the Spanish version (2.0) of the *Perceived Stress Scale* (PSS) adapted by Remor (2006) was used. The items ask about the degree of control people feel when faced with unexpected, unpredictable or overloaded daily situations, which can translate into a discomfort that affects the individual. The questionnaire consists of 14 items, scored using a five point Likert-type scale from 0 (never) to 4 (very often). Although the scale has a two-facture structure, it is recommended that the scale be used as a single-factor, as stress alone is measured (Campo-Arias *et al.*, 2009; Pedrero & Olivar, 2010). To measure the variable "academic performance", student final marks from the winter semester of the academic year 2019-2020 were used from the courses: "Musical Instrument Practice in Schools" and "Vocal Education and Choir Practice" of the students involved. Marks in these courses were obtained from the different tests in both courses measuring hearing, interpretation, score reading, dramatization, corporal expression, coordination, improvisation, singing, as well as creativity and group work.

To analyze the effects of a mindfulness practice (independent variable) on music academic performance and the degree of stress (dependent variables), following the classification proposed by García & Alvarado (2000), a quasi-experimental, univariate and multivariate design was used with a type three or mixed experimental situation, with pretest and posttest measures established between the three independent groups. The sample was composed of MTT students with no incentive or academic credit provided. Assignment of participants to the different groups was done voluntarily and randomly to ensure availability, involvement and motivation in the investigation. At the start of the study, there were 31 students in the sample. However, this number was reduced after eliminating participants already practicing mindfulness regularly to avoid biases in

the group results. Participants were also excluded who did not respond in full to the questionnaire or missed items during any of the phases. Finally, groups were balanced by gender ratios to homogenize them. To control external factors, such as the influence of the teacher, training induction was performed in the absence of the teacher. Control of masked variables, such as the number of training sessions, was carried out by the provision of "Weekly record sheets", establishing at least 30 formal practices for continuity and belonging in the research[3].

After data was collected for the pretest phase, mindfulness induction was begun for both experimental groups. This consisted in focusing attention on breathing for seven minutes a day over a four-week period with the help of a guided audio, similar in style to those used in previous investigations (Arch & Graske, 2006; Tang *et al.*, 2007). Two experimental groups were included in order to study the possible effect and value of practicing in a group, able to offer support at peak demotivation and loneliness moments through the ability to discuss experiences together (Hjeltnes *et al.*, 2015).

IV. RESULTS

All collected data was analyzed using the statistical software SPSS (version 23.0). To analyze the existence of significant differences between the pretest and posttest phase in each of the dimensions of the construct, the Wilcoxon signed rank test was applied to two related samples (*Table 1*). Results showed that the E.G.I obtained significant changes for the facets "*observing*" (W= -2.023; p= .043) and "*acting with awareness*" (W= -2.023, p= .043). On the other hand, in the E.G.II, significant changes were obtained only for the facet "*observing*" (W= -2.023, p= .043). To check if the mindfulness training had been successful, and if there were any type of group consequence, the same type of analysis was performed (*Table 2*). Only E.G.I revealed significant differences in the level of mindfulness state (W= -2.023, p= .043). Nevertheless, E.G.II, showed a tendency very close to the significance level desired (W= -1.461, p= .144), however both this group and the C.G. did not demonstrate significant changes.

3. Complementary to the study, a qualitative analysis was performed on the observations gathered at completion of each practice using NVivo software. This was carried out with the objective of supporting the quantitative analysis data on the perception of sensations experienced by the participants in order to offer better consistency to the investigation. Due to space limitations, we will not discuss this analysis here.

Facets	Groups					
	E. G. I		E. G. II		C. G	
	W	*p*	*W*	*p*	*W*	*p*
Observing	-2.023	.043*	-2.023	.043*	-.962	.336
Describing	-1.236	.216	-1.084	.279	-1.134	.257
Act with awareness	-2.023	.043*	-1.219	.223	-.944	.345
Nonjudging	-.412	.680	-1.473	.141	-.412	.680
Nonreactivity	-.406	.684	-1.604	.109	-.135	.892

Note. *W* = Wilcoxon sign rank test; *p*= Significance Level; * Significance Level ≤ .05

Table 1. *Wilcoxon sign rank test applied for two related samples for mindfulness facets.*

Dimensions	Grupos					
	E. G. I		E. G. II		C. G	
	W	*p*	*W*	*P*	*W*	*p*
Mindfulness state	-2.023	.043*	-1.461	.144	-.405	.686

Note. *W* = Wilcoxon sign rank test; *p*= Significance Level; * Significance Level ≤ .05

Table 2. *Wilcoxon sign rank test for two related simple about mindfulness state scores*

Moreover *Figure 1* shows the stress situations for each group in different phases of the investigation. In order to verify significant evidence regarding perceived stress levels in each of the phases and groups, the Wilcoxon signed rank test was performed for two related samples (*Table 3*).

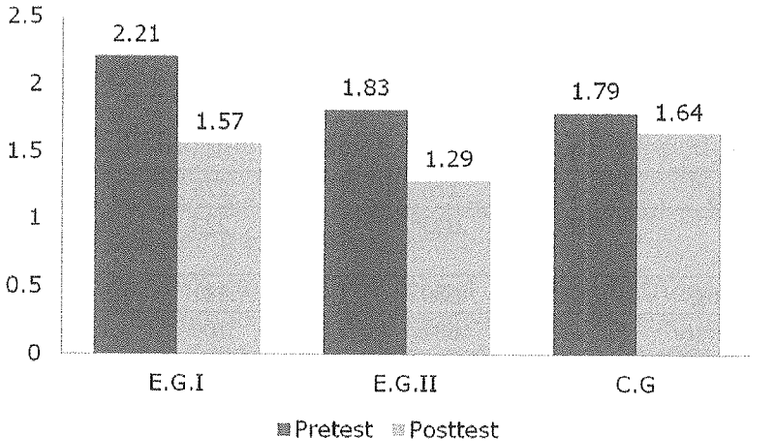

Figure 1. Pre- and Post- mean of the group stress levels.

Variable	Groups					
	E. G. I		E. G. II		C. G	
	W	*p*	*W*	*p*	*W*	*p*
Academic Stress	-2.023	.043*	-2.023	.043*	-.674	.500

Note. *W* = Wilcoxon sign rank test; *p*= Significance Level; * Significance Level ≤ .05

Table 3. Wilcoxon sign rank for two related samples about global stress scores.

In both experimental groups there was a significant reduction in perceived stress levels after the training (W= -2.023, p= .043). On the other hand, the C.G. did not experience any significant change (W= -.674, p= .500). A scatter plot was made to attribute the effects of changes in perceived stress to the independent variable (*Figures* 2, 3 & 4). As this relation is inversely related, a certain correlation was noted in both experimental groups (above all in E.G.II). Thus, this correlation was analyzed using Spearman's Rho coefficient (*Table 4*). While significant results were obtained for E.G.II (r= -1.000, p= .000) for E.G.I the values were very close but not significant (r= -.600, p= .285).

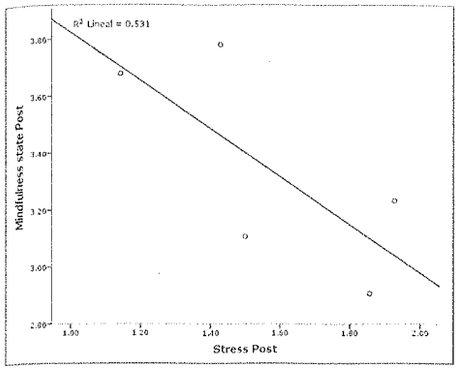

Figure 2. Correlation between mindfulness state and stress scores for E.G.I

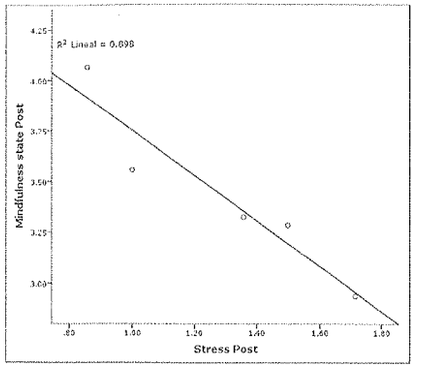

Figure 3. Correlation between mindfulness state and stress scores for E.G.II

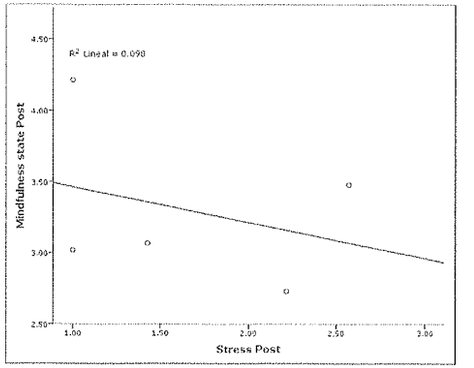

Figure 4. Correlation between mindfulness state and stress scores for C.G

Groups	N	r	*p*
E. G. I	5	-.600	.285
E. G. II	5	-1.000	.000**
C. G	5	-.154	.805

Note. N= Sample size; r= Rho de Spearman´s correlation; *p*= Significance Level; ** Significance Level ≤ .01 (bilateral).

Table 4. *Bivariation correlations between mindfulness state and stress scores.*

Lastly, to establish a relationship between academic performance and the independent variable analyzed, Table 5 shows the mean calculations

and standard deviations for the final marks obtained in both courses. The experimental groups obtained average final marks well above the C.G. (E.G.I= 1.15, E.G.II= .77 point difference). A striking aspect is that even the variability of the marks obtained was lower for the experimental groups (SD1= .62; SD2= .93), indicating that the marks obtained by each participant in the same group were very similar.

Variable	Groups					
	E. G. I		E. G. II		C. G	
	M	*SD*	*M*	*SD*	*M*	*SD*
Marks	8.65	.62	8.27	.93	7.50	1.19

Note. M = Mean; *SD* = Standard Deviation.

Table 5. *Means and standard deviations of* the final marks obtained in musical subjects.

V. DISCUSSION

Given that this is the first study to analyze academic performance for MTT students at the University of Granada, and is therefore a pilot study of the different variables used, certain caution is necessary when interpreting the results. From the start, we knew the sample size would be a handicap for the investigation. In any case, generalization of the results was not the objective. Only through subsequent studies will we be able to replicate or validate the study and the principal findings. An example would be applying an alternate more frequently used mindfulness study such as Jon Kabat-Zinn's MBSR programme. Additionally, it would be of great interest to check the duration the effect the training has on students, for example in the length of time the student experiences results after starting the practice.

Moving to examine the results of this investigation, firstly, the hypothesis that groups undergoing a mindfulness-based training significantly improve their levels of mindfulness as compared to the non-participating group has been validated to a certain extent. This condition was only seen in E.G.I, while for E.G.II, conserving the null hypothesis. This could be due to a multitude of factors such as the time of practice, the temporal continuity or even the motivation and attitude felt towards the practice. According to Díaz (2011), practicers can develop attention abilities with just 15 minutes of practice a day. For Tang *et al.* (2007), the amount of time that participants practice mindfulness is not as important as the quality of

the practice in order to affect attention responses. In Tang's study, attention improvements were seen after practicing mindfulness 20 minutes a day for only five days. Specifically in the facet 'observing' (which corresponds fundamentally with attention), both experimental groups underwent statistically significant changes. These results are consistent with previous research (Arch & Craske, 2006; Lutz *et al.*, 2008), suggesting that even relatively short periods (daily practices of seven minutes for four weeks) can contribute to improvements in attention.

In second place, it can be concluded that a regular practice of mindfulness for at least seven minutes a day contributed to the reduction of perceived stress levels in university students of the MTT. As evidenced by Spearman's Rho correlation analysis and the shared variability index (R^2), both variables have a high percentage of elements that explain the variability of this reduction. However, the fact that no significant results were obtained in the two groups could be due to the fact that the correlation depends to a large extent on the sample size, being in this case very reduced. In agreement with the results of previous investigations, it can be affirmed that mindfulness offers the individual the ability to observe disturbing thoughts and problems with a more relaxed and balanced attitude (Franco, 2009; Franco *et al.*, 2009).

Lastly, the original hypothesis that the groups taking part in a mindfulness-based training would show superior levels of academic performance to those in the control group was supported. Although this phenomenon cannot be exclusively attributed to induction of the practice (variables such as the role of the teachers, the hours of study and/or the practice hours may also have affected the results), evidence of a certain relationship should not be dismissed. Further investigation is required. In agreement with the results obtained, the study by Hjeltnes *et al.* (2015) shows that learning mindfulness practice can contribute to mastering academic difficulties as the ability to maintain attention in different learning situations can have important effects on performance. Additionally, in the study by Beauchemin *et al.* (2008), both students with learning difficulties and the teachers themselves experienced an improvement in academic performance. Based on these results, and in agreement with Franco (2009), more and more scientific evidence supports the potential of the practice. Consequently, it is time to begin to seriously consider introducing systematic practices of mindfulness in future music teacher study programs (and by extension, any specialty). This would provide teachers with techniques, tools and strategies to improve their own musical performance, and to face the problems that underlie the teaching practice such as burnout and stress.

In conclusion, it would be a mistake to consider mindfulness an immediate solution to all problems, and worse to consider it a mere placebo. Just as muscles need daily sport to maintain their ability and strength, the mind needs a continued practice to direct attention and enhance concentration. Thus, its true potential can only be found through continuous practice regulated by a person's own intrinsic motivation. Mindfulness, beyond the commercial setting, is not only a remedy for any kind of ailment, discomfort, or disorder, but instead a philosophy of life that influences how one can deal with ramblings of the mind, problems and without a doubt, contributes to being more present in the day to day.

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