

YOGA, MINDFULNESS AND EMOTIONAL INTELLIGENCE: THEIR IMPACT ON MODERN MANAGEMENT EDUCATION

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Abstract

This study examines the relationship between yoga practice, emotional intelligence (normally abbreviated to EQ or EI), and academic performance among business students through the lens of mindfulness. Research demonstrates that yogic practices significantly enhance both EI and academic achievement. Peer ratings measured EI whilst faculty assessments evaluated academic performance, avoiding same-source bias. Mindfulness emerged as a crucial mediator, accounting for 88% of yoga's effect on EI and 56% of improved academic performance. The remaining impacts (12% for EI, 44% for academics) stemmed directly from yoga practice. The findings underscore yoga's potential value in business education.

Keywords: Business Students; MBA, Yoga, Yoga, Mindfulness, Management Education.

INTRODUCTION

For more than three decades there has been a growing awareness that success in business requires emotional intelligence (abbreviated as EI or EQ), i.e., the ability to perceive, use, understand, manage, and handle emotions and that it is arguably more important than IQ [1]. Business schools have responded to this view and are exploring methods to ensure that their graduates are not deficient in EI. This research seeks to find whether yoga can help enhance EI of MBA students and whether mindfulness acts as a mediator.

Further, it seeks to examine whether yoga enhances academic performance of these students and the role of mindfulness in the enhancement. There has been little research on impact of yoga on emotional intelligence and practically none on the mechanism by which yoga enhances emotional intelligence. This research attempts to fill this gap by delineating a mechanism. Moreover, for the first time the research quantifies the indirect effect of yoga through mindfulness and the direct effect of yoga on EI. The indirect effect of yoga through mindfulness and the direct effect of yoga on academic performance of MBA students has also been quantified.

EMOTIONAL INTELLIGENCE

While IQ has more than a hundred-year “history of research with hundreds of thousands of people, emotional intelligence is a new concept” [1: 34]. Peter Salovey and John Mayer [2] first outlined the construct of Emotional intelligence, presenting a framework for emotional intelligence, a set of skills hypothesised to contribute to the accurate appraisal, expression and effective regulation of emotion in oneself and in others and the use of feelings to motivate, plan, and achieve in life.

Daniel Goleman argues that “at best IQ contributes about 20 percent to the factors that determine life success, which leaves 80 percent to other forces” [1: 34]. He presents evidence to demonstrate that all those who get high marks in IQ test as students were “not particularly successful in terms of salary, productivity, or status in their field” [1: 35]. With a hopeful message, Daniel Goleman’s [2] book *Emotional Intelligence: Why it can matter more than IQ* was in the best-seller list of *The New York Times* for a long time. Translated into forty languages, the book continues to be a best-seller worldwide [3].

Robert Cooper and Ayman Sawaf [4] outlined a model of EQ that relates specific skills and tendencies to emotional literacy, fitness, depth and alchemy. Steven Stein and Howard Book [5] in their comprehensive research across thirty professional and managerial career fields found that (depending on the job type) as much as 47% to 56% of success is the result of EQ. These works challenge the pre-eminence of IQ by pointing out the importance of EI for leadership and productivity in organisations. Managing relationships plays a vital role in sustaining the human platform that supports productivity.

“When people feel good, they work at their best” [6: 14]. Various authors have identified domains of EI differently. John Mayer and Peter Salovey [7] outlined four components of emotional intelligence, viz., regulating emotions, understanding emotions, assimilating emotion in thought and perceiving and expressing emotion. Goleman and his colleagues [6] have defined emotional intelligence as the ability to develop competence in four domains: self-awareness, self-management, social awareness and relationship management. The construct of emotional intelligence has been so often refined by researchers that “different studies have identified very different skills as part of emotional intelligence and neglected conceptual problems have led to considerable confusion” [8: 181).

The construct of EI has been criticised on the grounds of there being not enough empirical evidence to validate the theory and emotional intelligence not being much different from IQ and personality construct. The first major salvo was fired by Michaela Davies and her colleagues [9] who claimed that subjective measures of emotional intelligence were same as the factors of existing valid personality inventories.

While Goleman claimed that “the most effective leaders are alike in one crucial way: they all have a high degree of what has come to be known as emotional intelligence. ...emotional intelligence is the sine qua non of leadership” [10: 94], Hans Jürgen Eysenck [11: 109] states that Goleman “exemplifies more clearly than most the fundamental absurdity of the tendency to class almost any type of behaviour as an ‘intelligence’ ... the whole theory is built on quicksand: there is no sound scientific basis”.

Goleman and his colleagues have questioned research methodology of the critics and insist that “by Kuhn’s criteria, the emotional intelligence paradigm would seem to have reached a state of scientific maturity” [12: 6]. High correlations make determination of difference between EI and with a combination of personality factors and IQ difficult [13, 14]. Lynn Waterhouse [15] claims that Goleman’s theory of EI not only lacks empirical validity but is positively harmful amounting to educational malpractice.

A consensus on existence or utility of EI is yet to evolve in the academia but “the enthusiasm of the business community for new and exciting instruments and procedures seems to be playing a large role in the staying power of the construct” [16: 412].

It has been argued that emotionally intelligent managers and workers provide competitive advantage to the firm [17]. They also ensure continued good future business performance [18]. Svetla Stoyanova-Bozhkova and colleagues [19] found higher EI to be a competitive advantage for tourism and hospitality managers, while Huong Trang Kim [20] found correlation between higher EI and adoption of good business practices among SME managers.

YOGA AND EMOTIONAL INTELLIGENCE

The ancient Indian text *Bhagwat Gita* describes yoga in a number of ways including as “evenness of mind” (Chapter 2; verse 48); “skill in action” (v 50); “renunciation of selfish purpose” (Chap 6; v 2); “harmony in all that we do” (v 16); and “unlinking of the link with pain” (v 23).

Around sixth century AD, sage Patanjali compiled the *Yoga Sutras* – comprehensive aphorisms often referred to as ‘classical yoga’ [21]. The 8 limbs of yoga in the Yoga Sutra are:

- Yama (Selfless values) Non-violence, truthfulness, non-stealing, self-restraint and greedlessness.
- Niyama (Self-discipline) Cleanliness, contentment, austerity, self-study and resignation.
- Asana (Postures) Body postures that develop physical steadiness for meditation.
- Pranayama (Breathing practices) cardiovascular control to retrain the respiratory organs.
- Pratyahara (Withdrawal of senses) Withdrawal of sensory inputs, coming from the five senses into the physical being.
- Dharana (Concentration) Creation of one-pointedness of the mind.
- Dhyana (Meditation) Uninterrupted flow of concentration.
- Samadhi (Merger of individual consciousness with universal consciousness) highly esoteric practice.

Modern yoga “has developed as a product of a process that bridges the worlds of Indian spirituality and European physical culture and has been sculpted to suit modern aspirations and inclinations that are the common heritage of a cosmopolitan culture” [22: 2].

While the theoretical case for the impact of yoga on EI is strong, the empirical evidence has been limited. On the basis of a cross-sectional online survey of Australian couples, Nadine Galloway and colleagues [23] suggest that yoga may be an effective approach to improving mindfulness and EI. However, since the focus of their research was on couple satisfaction, the authors have not examined whether mindfulness has a mediating role in enhancement of EI.

Yoga and academic performance

Scholarship on the use of yoga in educational settings seems positive. In a sample of 112 high school students in New York, it was discovered that involvement in yoga lessons is connected with a higher mean GPA when compared to comparable amounts of participation in traditional physical education programmes [24]. Studies in other countries, e.g., Turkey [25] and India [26] have also found higher levels of academic performance as a result of yogic practices.

Mediation by mindfulness

This research examines whether mindfulness – rooted in Buddhist tradition but secularised in the West – mediates between yoga and EI and yoga and academic performance. In traditional yoga, the focus is on mind-body-breath awareness and not just on the alignment details of the physical posture. Another characteristic of yoga is its emphasis on observing rather than reacting. It is to be expected that practicing yoga will improve mindfulness and several empirical studies have confirmed this hypothesis. For example, in a study of 46 staff and students of two colleges of Bronx, New York, yoga intervention was found to be a viable method for increasing levels of mindfulness [27]. Recently, similar results were found in a study of 47 nursing students in Turkey [28] and of 26 students and staff at a German university [29].

Mindfulness and Emotional Intelligence

Links between mindfulness and EI have been established by researchers during the last two decades. A review by Sander Koole concludes that mindfulness “fits with the holistic orientation of systematic emotion regulation” [30: 28]. According to Nicola Schutte and John Malouff, “both mindfulness and emotional intelligence are associated with positive life outcomes” [31: 1116] and “core aspects of mindfulness help explain the connection between emotional intelligence and mindfulness” [31: 1117].

Mindfulness entails the ability to be aware of phenomena such as “internal and exterior events and happenings rather than as the objects of a conceptually constructed world” [32: 253]. As it allows “an immediacy of direct contact with events as they occur, without the overlay of discriminative, categorical, and habitual thought, consciousness takes on a clarity and freshness that permits more flexible, more objectively informed psychological and behavioural responses” [33: 212]. Research in neuroscience has revealed that mindfulness causes an activation shift in the prefrontal cortex leading to a greater emotional balance [34].

Researchers have found correlations between mindfulness and components of EI [35-39]. According to Christina Hill and John Updegraff, “individuals with mindfulness tendencies are less emotionally reactive” [40: 83]. In a study of 96 undergraduate students of a large US university they found that “mindfulness is related to effective emotion regulation” [40: 87]. In a study of Taiwanese workers, Li-Chuan Chu found positive relationship between mindfulness and EI [41]. In a meta-analytic review of 17 empirical studies which contained 19 samples, a positive relationship between mindfulness and EI was found [42]. In a systemic review of 10 mostly recent studies relating to healthcare professionals, similar results were found [43].

Mindfulness and academic performance

Some studies have found benefits of mindfulness in management education. In a study of 44 MBA students, it was discovered that mindfulness improved performance of the students as they could focus on business problems for longer periods of time [44]. In a study of 97 students in the leadership module of an MBA programme at a US university, on the basis of post-course questionnaire and qualitative examination of notebooks of the students, it was found that due to mindfulness intervention the students experienced transformational learning [45]. The authors claim that mindfulness encourages students to be aware of their own views as also the views of others, while also lowering resistance to new ideas and methods of doing things. In experiments, it was found that mindfulness improves academic performance directly as also through stress reduction [46].

Hypotheses

On the basis of the literature analysed in the preceding sections, the following hypotheses are proposed:

- H1** Yoga is positively related to emotional intelligence.
- H2** Yoga is positively related to performance.
- H3** Yoga is be positively related to Mindfulness.
- H4** Mindfulness mediates the relation between yoga and emotional intelligence.
- H5** Mindfulness mediates the relation between yoga and performance.

Figure 1 depicts these hypotheses.

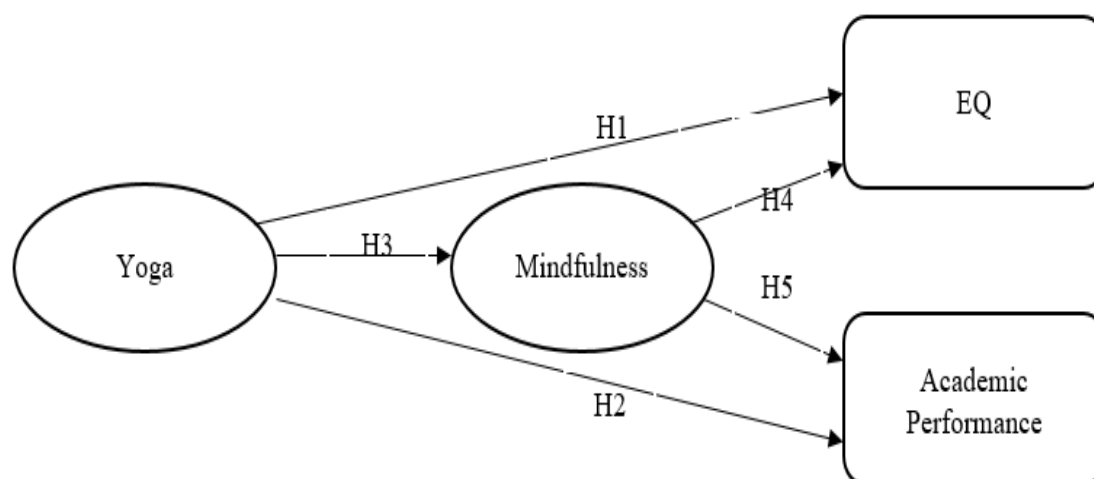


Figure 1: Mediation model of Effectiveness of Yoga

METHODS

Design

A quantitative rather than a qualitative technique has been chosen because the purpose is to evaluate the hypotheses described above deductively. The effects of yoga practise on MBA students in Bosnia and Herzegovina were studied using a Randomized Controlled Experiment. This was not a clinical trial as no specific pathologies were being treated. No measurements were made by clinical instruments.

Sample

MBA students of the business schools in the country's capital Sarajevo were invited to attend yoga classes. Of those who expressed interest, a computer programme selected 350 students, 314 showed up to fill out the background information and initial evaluation questionnaire. Seven of the 157 individuals in the intervention group lost interest and did not complete the yoga course, and five of those who did complete the course did not come for the final test, bringing the treatment group down to 145. Seven students from the control group did not show up for the final test, reducing the control group to 150.

The personal information of the participants was encrypted using a secure key code. Individuals could request a personal report with their results after the tests were completed. Faculty and administrators were not given access to questionnaires or study data. All the students had a good undergraduate degree and had prior management experience and were well-educated. Average age was 29 years 10 months. Following baseline measures, the participants were assigned to either the following batch (intervention group) or the waiting list (control group) using a computer-generated randomisation sequence and they were notified via automated emails.

Intervention

Yoga classes were scheduled every day for 90 minutes, seven days a week for 20 weeks. The classes were not compulsory and the participants could attend or miss the class any day.

Measurements

Emotional intelligence. Researchers in Management as also in Psychology find it difficult to choose an appropriate scale. Peter O'Conner and his colleagues [47] in a well cited paper have provided guidance on how to choose a scale. Based on this guidance, Trait Emotional Intelligence Questionnaire – Short Form (TEIQue-SF) was chosen for this study. TEIQue-SF has been found to have high internal consistency with good Cronbach's alpha in non-clinical studies in several countries including Belgium [48], UK [49] and USA [50].

A Systematic Review and Meta-analysis have confirmed its incremental validity [51]. Reliability and validity of the instrument have been testified by the previous research programmes using TEIQue data [52-54]. TEIQue instruments and materials are constantly updated. Scores have been rescaled to vary between 1 (minimum = completely disagree) and 7 (maximum = completely agree).

Academic performance. Business education is somewhat different from higher education in arts and sciences as business education purports to impart hard and soft skills synchronously to enhance capability in executive level decision making. Business schools attempt to assess performance in business analysis and judgement making through tests conducted on business case studies. The scores obtained in the tests are a good surrogate for their level of analytical and decision-making capabilities. Marks obtained in case studies by the students as assessed by the faculty have been used as evidence of work performance.

Mindfulness. Mindfulness is a mediating variable; it is not a moderating variable. The difference the two types of variables “is that mediation is an attempt to establish *mechanism* by which one variable may be affecting another, whereas moderation is looking for differences in the relationship between group assignment and outcomes based on *pre-existing* variables” [55: 384].

The ‘Mindful Attention Awareness Scale’ (MAAS), a psychometrically sound instrument [33] has been used in this research. The main reason for choosing this scale was that it is the most well-known and widely used of the measures currently in use. MAAS has been validated in a number of research projects and has attained a level of trustworthiness [56].

Yoga. Yoga is measured in the unit of hours per week. This is the usual measure used in quantitative studies relating to yoga [23].

RESULTS

The effectiveness of the yoga intervention is shown in Table 1 in a difference-in-differences manner. The intervention group showed substantial differences in EI, academic performance, and mindfulness, but the control group did not exhibit any meaningful changes over this time period.

Table 1: Scores at baseline and follow-up for intervention and control group

Score		Control group	Intervention group	Difference
Mindfulness score	Initial	3.88 (0.75)	3.89 (0.71)	0.01
	Final	3.88 (0.75)	4.12 (0.85)	0.24***
	Change	0.00	0.23***	0.23***
EQ score	Initial	4.48(0.68)	4.48(0.64)	0.00
	Final	4.46(0.67)	4.75(0.75)	0.29***
	Change	-0.02	0.27***	0.29***
Academic score	Initial	6.69 (1.03)	6.71 (1.01)	0.02
	Final	6.72 (1.04)	7.59 (1.21)	0.89***
	Change	0.03	0.88***	0.85***

*** $p < .01$.

Table 2 shows the mean standard deviations, correlations, and dependability statistics. The correlations are significant and positive, as predicted. Yoga, in particular, is linked to Mindfulness, EI, and grades; and Mindfulness is also positively linked to EI and grades.

Table 2: Means, standard deviations, correlations, and reliabilities

	Variable	M	SD	1	2	3	
1	Yoga	4.98	0.78	(0.89)			
2	Mindfulness	4.12	0.85	0.35**	(0.85)		
3	EQ	4.72	0.75	0.33**	0.39***	(0.91)	
4	Academic performance	7.59	1.21	0.34**	0.43***	0.29*	(0.92)

Note. N = 145; Reliabilities (Cronbach alphas) are in parentheses on the diagonal. * $p < 0.1$, ** $p < 0.05$, *** $p < 0.01$.

The next step is to examine the mediating role of mindfulness. Regression was run on the intervention group by PROCESS macro [57]. Table 3 shows the findings of the regression indicating partial mediation.

Table 3: Regression results for mindfulness mediated model of impact of yoga

	Mindfulness			EQ			Academic performance		
	<i>b</i>	SE	<i>t</i>	<i>b</i>	SE	<i>t</i>	<i>b</i>	SE	<i>t</i>
Constant	2.17	0.30	7.01***	2.31	0.70	3.30***	3.08	0.96	3.19***
Yoga	0.19	0.05	3.80***	0.03	0.01	3.00**	0.40	0.18	2.22**
Mindfulness				0.71	0.26	2.73**	2.13	0.70	3.04**
Indirect effect				0.23	0.11	2.09**	0.51	0.25	2.04**
(Confidence Interval)				(BCLB=0.03, BCUB=0.47)			(BCLB=0.01, BCUB=1.01)		
Direct effect				0.03	0.01	3.00**	0.40	0.18	2.22*
(Confidence Interval)				(BCLB=0.01, BCUB=0.05)			(BCLB=0.04, BCUB=0.76)		
Total effect				0.26	0.10	2.60**	0.91	0.31	2.94**
(Confidence Interval)				(BCLB=0.08, BCUB=0.48)			(BCLB=0.29, BCUB=1.53)		
R²	0.39			0.52			0.52		

Note. Coefficients are not standardised. Bias corrected lower bound (BCLB) refers to lower limit of 95% confidence interval and bias corrected upper bound (BCUB) refers to upper limit of the 95% bootstrapped confidence interval. ** $p < 0.05$, *** $p < 0.01$.

Hypothesis 1 predicts that yoga would be linked to a higher level of EI. The total effect of yoga on EI is significant ($b=0.26$, $p<0.05$, $BCLB=0.08$, $BCUB=0.48$) which supports the hypothesis. Hypothesis 2 predicted that yoga would be linked to improved academic achievement.

The total effect of yoga for marks received by students is significant ($b=0.91$, $p<0.05$, $BCLB=0.29$, $BCUB=1.53$) which supports the hypothesis 2. The association between yoga and mindfulness is positive and highly significant ($b=0.19$, $p<0.01$), which supports hypothesis 3.

The indirect effect of yoga (through mindfulness) on EI is shown to be significant ($b=0.23$, $p<0.05$, $BCLB=0.03$, $BCUB=0.47$) when the hypothesis 4 relating to mediation was examined. Yoga also has a comparatively small but significant direct influence on EI ($b=0.03$, $p<0.05$, $BCLB=0.01$, $BCUB=0.05$). The indirect effect of yoga (through mindfulness) on academic performance was also significant ($b=0.51$, $p<0.05$, $BCLB=0.01$, $BCUB=1.01$), according to the mediation Hypothesis 5. Yoga had a substantial direct influence on grades ($b=0.40$, $p<0.05$, $BCLB=0.04$, $BCUB=0.76$). Thus, yoga had a direct and indirect effect on the EI of business students as well as their grades. We find that yogic practice leads to higher EI as well as higher grades of students. In the case of EI, the effect of yoga through mindfulness is 88 per cent of the total effect whereas in case of the academic performance the effect of yoga through mindfulness is 56 per cent of the total effect of yogic practice.

DISCUSSION

Table 1 shows that after intervention, whereas the control group did not demonstrate any significant change, the intervention group shows that differences in mindfulness, EQ and academic performance were highly significant. Mindfulness and EQ increased by six per cent, and academic performance by 13 per cent. It is notable that after intervention the standard deviation of outcome variables has also increased which indicates that effect of yoga is not the same for each individual. Incidentally, higher variation in the predictor variables lead to greater precision of the parameters.

The results are generally consistent with the earlier research across the world on different types of samples of student populations quoted in earlier sections. In respect of influence of yoga on mindfulness the results are in accordance with previous research by Danielle Shelov and colleagues [27] in their study in two colleges of Bronx, New York, Erkin and Senuzun Aykar [28] of nursing students in Turkey and a study of Janika Epe and colleagues at a German university. In respect of influence of yoga on academic performance, the results are in consonance with previous studies including that of schools in various countries [24-26] where it was found that yoga improves academic performance.

In respect of influence of mindfulness on EI, the results of this research are in consonance with the results of a cross-sectional online survey of Australian couples by Nadine Galloway and colleagues [23]. Regarding mindfulness improving academic performance, the results are in accordance with the previous research in U.K. [44], Austria [45] and Slovenia [21].

Western academics prefer to subtract spirituality from yoga. In this research also, a secular approach has been taken to yoga and mindfulness. However, some scholars consider such an approach a Eurocentric narrow-minded predisposition [58]. These apprehensions can be addressed in future research. When attempting to apply conclusions from this study to other situations, caution is advised. Utmost care has been taken to check internal validity but in most randomised experiments external validity is a concern. Due to cultural factors, the applicability of average results in the Balkans may not apply to countries with different cultural traditions. Further research may be required to confirm the results in diverse cultures.

CONCLUSION

This research identifies the mechanism by which yoga increases EI. Moreover, this research quantifies the effect coming through mediation by mindfulness and directly from yoga. Table 3 shows that 89 per cent of the effect on EI coming from enhanced level of mindfulness and the remaining 11 per cent coming directly from the practice of yoga. As far as their academic performance is concerned, 56 per cent of increase in the marks received by the students came through mindfulness while the remaining 44 per cent were accounted for directly from yogic practices. The designers of the EI construct have made far-reaching claims for it, declaring it “a good goal for a democratic culture” (Mayer and Salovey 1997: 16).

They opined that emotional intelligence has a learned component with a “caveat that the gains will need to be considered with caution” (p. 18). Over the years, on the basis of further research, this caution has been replaced by a sunny optimism resulting in a growing EI industry. Many companies have included EQ tests in their recruitment process and are making efforts to make their staff more emotionally competent so that they function more efficiently, cooperate more productively and remain with the company longer. Business schools have a responsibility to educate their MBA students in a way that they are able to function as emotionally competent managers. The research shows that yoga can be an effective instrument for enhancing EI as also for improving academic performance of business students.

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