



Whether Students Pursuing Higher Education Benefit From Their Involvement In Extracurricular Activities In Terms Of Academic Excellence And Professional Proficiency: An Analysis

Gagandeep Bhullar^{1*}, Satinder Pal Singh², Rupali Arora³

^{1*}Assistant Professor, Chandigarh Business School of Administration, CGC, Landran-140307 and Research Scholar, UBS, Chandigarh University, Gharuan-140413. E-mail: dsw.cgc.gb@gmail.com

²Professor and Head, Department of BBA, University School of Business, Chandigarh University, Gharuan-140413.

E-mail: satinder.e8992@cumail.in

³Professor, University School of Business, Chandigarh University, Gharuan-140413. E-mail: rupali.arora@cumail.in

Citation: Gagandeep Bhullar et al. (2024), Whether Students Pursuing Higher Education Benefit From Their Involvement In Extracurricular Activities In Terms Of Academic Excellence And Professional Proficiency: An Analysis, *Educational Administration: Theory And Practice*, 30(4), 1633-1644, Doi: 10.53555/kuey.v30i4.1723

ARTICLE INFO

ABSTRACT

A student's overall personality development is recognised to be significantly influenced by their participation in extracurricular activities (ECAs). Determining whether or not extracurricular activity engagement aids students pursuing higher education in achieving greater academic excellence and professional proficiency was the main objective of this study. Using a well-crafted questionnaire distributed to participants, a random sample strategy was employed in this study to gather the primary data. SPSS software was then used to analyse the data using the proper statistical techniques. The findings of the analysis were documented as T-test reports, one-way ANOVA, and SEM outcomes. Students enrolled in professional programmes at some of the selected higher education institutions in Punjab, India, made up the sample population for this study. The study's findings demonstrated that students' academic excellence and professional proficiency are significantly enhanced by their involvement in ECAs.

Keywords: Extracurricular Activities, Academic Excellence, Professional Proficiency, Students, ECAs, Higher Education Institutes

1. Introduction

Generally saying, extracurricular activities (ECAs) are the activities conducted by students outside the scope of their standard curriculum and these are known to exhibit varied effects on students at each stage of their education. These are available at all educational levels, including kindergarten, junior high, middle school, high school, graduation, and post-graduation. Very recently, Kanaeva (2012) defined the ECAs as a collection of various educational activities that students engage in outside of the classroom and beyond their study time [1]. These are seen as a means of planning free time. Students can learn new skills, explore their identities, and have fun by being involved in societies, debates, drama, athletics, cultural events, and other such pursuits. Consequently, comprehensive, systematic activities in which students can take part regardless of whether they are relevant to their degree are also described as ECAs [2].

Usually, these activities are organised and directed by students under the supervision of faculty members or coaches and recognised as the symbolic of the acquired skills of the candidates [3]. These activities also play a role in applying for admission to prestigious higher education institutes. Most college applications inquire about extracurricular involvement of the candidates [4]. When not conducting research for class assignments, a large number of college students spend time doing extracurricular activities. Students focus on developing the abilities necessary for success in the workforce in the future and relevant to their chosen field. These activities also provide the students opportunities to improve their interpersonal abilities, leadership capabilities, and self-confidence. Students involved in various such activities surely face a better exposure and therefore are benefitted with higher earnings after college which further lays profound impact on adult well-being [5]. This happens because students who participate in extracurricular activities are able to connect their classroom learning to real-world situations, which enhances their comprehension of their own skills, abilities, and career goals.

Within the context of higher education, extracurricular activities (ECAs) refer to a variety of activities that students engage in outside the confines of their degree requirements. Despite not being part of the regular curriculum and not offering academic credit, these extracurricular activities are crucial to students' general growth and quality of life. Whatever the exact definition, ECAs are increasingly acknowledged as a crucial component of the student experience and as a means of acquiring knowledge and improving oneself [6]. Similarly, according to Geraghty (2010) participation in ECAs serves to increase students' experience and positively impact their academic performance, professional skills development, and self-confidence [7]. Recently, 3,800 students and 4,400 teachers from India participated in a study conducted in 2018 by Cambridge Assessment International Education, a branch of Cambridge University, with close to 20,000 educators worldwide. It was discovered that compared to their overseas peers, Indian students attend more extracurricular events and classes. While 74% of students indicated they typically play sports at school, the majority of students stated they routinely participate in extracurricular activities. According to this study, science club, art club, literary club, and debate club were the most popular extracurricular activities among Indian students [8].

The focus of educators, academics, and employers today is to evaluate the relationship between young people's present engagements and their future potential [9]. The academic institutes have to focus, not only on making students more employable but also to lay emphasis on expanding their entrepreneurial abilities by introducing curricular and extracurricular activities which encourage them. Many researchers believe that extracurricular activities at universities and professional colleges effect students' perception about the acquired skills and competencies in a positive way and this helps to make them job ready [10, 11].

In addition to the aforementioned benefits, involvement in extracurricular activities is known to help students develop their identities, discover their interests, build social networks and human resources, and hone their skills through interpersonal relationships [12–15]. Students who take part in these events benefit greatly in terms of their performance at work, job search initiatives, and academic grades. They frequently achieve their professional and academic objectives and the desired career outcomes [16]. Therefore, participation in extracurricular activities (ECAs) can serve as a useful marker of a teen's identity or personality and may even aid in the process of forming an identity [17].

Therefore, engaging in Extracurricular Activities (ECAs) is undoubtedly a significant facet of student life that aids in improving their performance as a whole during the academic year. But the majority of the research that is currently accessible in this area has only been done on kids who are enrolled in school, and there aren't many findings like this worldwide for students who are pursuing higher education. So, it was decided to look into whether or not being involved in ECAs affects the academic excellence and professional proficiency of the students pursuing higher education.

2. Literature Survey

This section provides a summary of the relevant studies on the relationship between students' involvement in extracurricular activities and their academic brilliance and professional competence.

Recently, Mukesh *et al.* (2023) reported that ECAs help students do better academically, and different ECA activities have varying effects on students' wellbeing. Additionally, the impact of ECA membership on stress management and academic pressure was also demonstrated by their findings. [18].

Similar to this, Nguyen (2022) demonstrated that ECAs' beneficial impacts primarily serve the shared objectives of improving academic accomplishment and equipping students with the necessary skills prior to earning a university degree [19].

Kravchenko and Nygard (2022) investigated students' involvement in extracurricular activities in context to their academic achievement and socioeconomic background. The findings presented a correlation between extracurricular activities and ambitions to attend the university and achieve better scores [20].

Further, an analysis conducted by Abuelenain *et al.* (2021) found that extracurricular activities conducted off-campus have a greater impact on university students' academic performance than those conducted on campus [21].

The good development of a variety of competencies and skills linked to employability, such as communication, problem-solving, and cooperation, has been linked to extracurricular activity involvement, according to Buckley and Lee (2021). Improved time management and prioritisation abilities are thought to contribute to better self-management, according to study participants [22].

According to Kocayigit and Ekinci (2020), student experiences both outside and within of the classroom have a significant impact on the sustainability of lifelong learning and overall professional development [23].

Ahmad *et al.* (2019) conducted an assessment of the correlation between college students' extracurricular activities and academic performance. Findings showed that involvement in extracurricular activities improved academic accomplishment, exam performance, confidence, and standardised test scores. [24].

Salmeen *et al.* (2019) investigated the effects of extracurricular involvement on the academic achievement, social values, conduct, and attitudes of female students at Jubail University College, Saudi Arabia. The results of the study showed the positive effect that ECA involvement had on students' progress in their academic careers. Students indicated interest in the extracurricular programmes offered by the college as well as a desire to take part in extracurricular activities [25].

Rathore *et al.* (2018) conducted a survey to look at the relationship between students' engagement in different extracurricular activities in some high schools in Lahore, Pakistan. The results show that engagement in extracurricular activities motivates students to attend class with greater regularity, which is necessary to achieve high exam scores. Students who engaged in extracurricular activities outside of the classroom performed better than non-participating students [26].

Clark *et al.* (2015) examined and documented the opinions of former students about the immediate and long-term effects of extracurricular activities on their employability and professional flexibility [27].

According to a recent study by Seow and Pan (2014) at Singapore Management University, taking part in extracurricular activities has a noteworthy and favourable effect on students' academic outcome. But, if too much time is spent on it, engagement in it can also have a detrimental impact on students' academic performance [28].

Suleman (2014) stated that a statistical analysis and subsequent debate showed the detrimental effects of excessive extracurricular pursuits on academic achievement. Students who consistently engage in extracurricular activities and dedicate 40 minutes a day to them, on the other hand, did better than those in the control group [29].

Students' academic performance at three public institutions in Peninsula Malaysia was examined by Shamsudin *et al.* (2014) in relation to physical, pedagogical, and social activities. Results showed that academic success and being involved in extracurricular activities did not seem to be substantially connected. [30].

Burgess (2013) found that students who participate in ECAs considerably improve their time management abilities, which are crucial in professional contexts. They gain knowledge about managing schedules and setting priorities [31].

Wormington *et al.* (2012) demonstrated that by participating in the ECAs, students learn the goal setting and problem solving skills that helps them to become better professionals [32].

Craft (2012) asserted that students who regularly take part in extracurricular activities receive higher grades than their non-participating peers. The hidden curriculum—which covers cooperation, leadership, dedication, success, failure, and healthy relationships—benefits extracurricular activity participants as well [33].

Knifesend and Graham (2012) stated that group activities are particularly beneficial in developing cooperation and improving interpersonal abilities, two traits that are necessary for success in the job and other future initiatives [34].

Rivera (2010) claimed that contribution in extracurricular events has a unfavourable effect on kids' academic achievement. He found that grade point outcome of the kids who were regular participants in sports was relatively poor [35].

Additional assistance for the development of non-cognitive skills is provided by involvement in auxiliary activities, according to Covay and Carbonaro (2010) [36].

Likewise, Reeves (2008) showed that student involvement in extracurricular activities is essential to the success of teamwork and individual responsibility. Furthermore, he stated that a student's academic record, discipline, and accountability are important components of their transcript that affect college admissions exams. Pupils who played sports had higher grades than those who did not [37].

Also, the findings of a study by Archer and Davison (2008) unequivocally showed that involvement in ECAs significantly improves participants' teamwork, communication, and confidence levels, which adds to their professional attributes later on [38].

In Watts's (2006) analysis, extracurricular activities were given more weight in the selection process to help a candidate advance and maintain employability in the future, even if academic grades were found helpful in landing an interview for an entry-level employment [39].

Darling *et al.* (2005) stated that extracurricular activities (ECAs) engagement and adolescence have a favourable association; greater ECA participation helps kids develop the attitude they need to deal with perplexity during puberty. Professionally speaking, students who actively participate in ECAs are thought to be superior to other students [40].

In a comparative study, Taras (2005) examined the impact of physical activity on teenage students' academic achievement and found that while physical activity was linked to some short-term improvements, more intense physical activity had no bearing on academic achievement over the long term [41].

De Lange (2000) asserted that an employer's selection of an employee is heavily influenced by the candidate's proficiency in teamwork, problem-solving, communication, leadership and other soft skills [4].

The literature reviewed and mentioned above does a good job of illustrating how ECA involvement affects students' professional and academic competencies. Many studies have found a positive association, though some have found a negative correlation and others have found no link at all, between students' engagement in extracurricular events and their academic and professional success. However, past research has shown that extracurricular activities are extremely important to the educational process. ECAs are essential to the improvement of students' academic training and their capacity to obtain a steady employment, in addition to fostering the overall development of their personalities. These literature studies have described a range of metrics that correlate extracurricular activity participation with academic/professional performance, offering students a wealth of options for participating in extracurricular activities. In this sense, investigating whether or whether higher education students' participation in ECAs influences both their professional and academic performance was our main goal. Furthermore, there aren't many studies accessible for students obtaining

professional degrees in developing nations like India, as the majority of prior research on this topic was done in advanced nations. We therefore took the initiative to investigate the impact of students' participation in extracurricular activities on their academic excellence and professional proficiency at a few chosen Higher Education Institutes in Punjab, India. The following hypotheses were the main focus of the current study:

H_a: Participation in ECAs improves students' academic excellence.

H_b: Engagement in ECAs enhances Students' professional proficiency.

3. Methodology

The study was carried out on students enrolled in professional programmes (B. Tech., MBA, BCA, and BBA) at four different universities in the Punjab state of India, out of which two are government run institutions: Punjabi University, Patiala, and IKG Punjab Technical University, Kapurthala, and two are private universities: Chandigarh University, Mohali, and Lovely Professional University, Jalandhar. Stratified random sampling was utilised in the present research. In order to achieve the study's objectives, a questionnaire with a diverse range of questions was created utilising the data currently available in the higher education competence framework and targeted focus groups. There were two sets of questions: fifteen on professional proficiency and twenty-two on academic excellence. In addition, some demographic questions were also included in the survey questionnaire so that participants can conclude their ECA assessments. Questions were formulated on a Five-point Likert scale; 1 denoting "strongly disagree", 5 denoting "strongly agree" and 3 denoting "neutrality". The sample population for this research project consisted of 525 students from the aforementioned universities that took part in the study. Descriptive, inferential, correlational, and regression approaches were used in the analysis of the data using SPSS 21.0 software. Conducted inferential statistics was comprised of T-test, one-way ANOVA and SEM (Structural Equation Modeling) analyses:

- **T-test:** The T-test is an analytical tool for determining whether there is a significant difference between the means of two groups. It evaluates whether random variation or statistical significance may be applied to the observed mean difference. William Sealy Gosset first presented the idea of the T-test and T-distribution in 1908 [42]. He explained how the T-test is derived mathematically and how to apply it to estimate means. Thereafter, Zar (1999) provided instructions on how to conduct T-tests using examples, as well as a breakdown of the test's components, assumptions, and different kinds of T-tests and how to interpret the results [43]. Later again, the concept of the T-test, its assumptions, various T-test kinds, and useful procedures for conducting and evaluating T-tests were all made clear by Field *et al.* (2012) through the use of illustrations and images [44].
- **One-Way ANOVA:** Statisticians employ the One-way ANOVA technique to ascertain the level of similarity between two or more samples taken from a population. Researchers can make inferences about the available data sets and compare the means of various samples with its assistance. It is an expansion of the T-test and the Z-test, and it was coined by Ronald Fisher in 1918 [45].
- **SEM Analysis:** Simultaneous testing and estimation of correlations between several variables is made possible by Structural Equation Modelling (SEM). It comprises two main components: the measurement model, which explains how latent variables relate to their observed indicators, and the structural model, which shows how latent variables are assumed to relate to one another. SEM is a flexible statistical method that gives researchers a single, cohesive framework to analyse intricate interactions. The reference provided by Kline (2016) is an excellent resource for gaining a deeper understanding of SEM and its applications [46].

4. Results and Discussion

This section presents the outcomes of the collected data, its rigorous analysis, and the extraction of valuable insights. Our primary objective in this phase was to unravel the complexities of the dataset and discern meaningful patterns and relationships among the variables under scrutiny. To achieve this, we employed a comprehensive set of analytical techniques, including statistical tests, data visualization, and qualitative analysis, based on the type of data and the study questions at hand.

The initial step in our analysis involved the organisation and cleaning of the raw data. This process entailed identifying and addressing missing values, outliers, and inconsistencies to assure the accuracy and dependability of our findings. Following the cleaning and preprocessing of the data, the quantitative analysis was started. We used a variety of statistical methods, including the T-test, one-way ANOVA, and SEM, to examine the correlations between the variables and evaluate our hypotheses. These statistical methods enabled us to uncover significant associations and draw conclusions based on the empirical evidences. However, it is imperative to acknowledge the limitations and uncertainties that accompany any research endeavour, and we encourage further research to build upon and refine our findings. To say, the analysis and results presented herein serve as a corner stone for informed decision-making and future research efforts in this domain.

4.1. Demographic Background

It is depicted in Table 1 that 51.5% of the sample population consisted of female students and 48.5% of male students. This roughly equal proportion of male and female responses confirmed the lack of a discernible gender gap within the surveyed population of students pursuing professional degrees.

Table 1. Gender based distribution of sample population

Sr. No	Gender	Frequency	Percentage (%)
1	Male	255	48.5
2	Female	270	51.5
Total		525	100

Further, the demographic distribution of respondents based on their professional programmes is given in Table 2. Students enrolled in B.Tech. programmes marked the highest percentage amongst the respondents (i.e., 30.7%), followed by students from MBA (25.1%) and BBA (22.7%), respectively. However, students undergoing BCA remained the lowest in number (21.5%) as respondents.

Table 2. Respondents' distribution based on their professional programmes

Sr. No	Programme	No. of Respondents	Percentage (%)
1	B. Tech	163	30.7
2	MBA	130	25.1
3	BBA	119	22.7
4	BCA	113	21.5
Total		525	100

4.2. Descriptive Analysis

The measures of central tendency and variance can be found using descriptive statistics. In the present research, the mean represents central tendency and the standard deviation represents variance. The following is an analysis of the descriptive statistics for the three variables being studied- Academic Excellence, Professional Proficiency and Extracurricular Activities (ECAs):

The calculated mean and standard deviation outcomes for each of the variables are shown in Table 3. The mean value of the professional proficiency variable came out to be 4.216, whereas the academic excellence variable has shown a mean value of 4.076. Some variation in the replies to the individual questions may have taken place about professional proficiency and academic excellence, as indicated by the standard deviation values for these variables, which were determined to be 0.968 and 1.027, respectively. On the other hand, ECA displayed a standard deviation of 0.920 and a mean value of 4.11.

Table 3. Mean and Standard Deviation Outcomes of the Variables being Studied

S. No.	Variable	Mean	Standard Deviation
1	Academic Excellence	4.076	1.027
2	Professional Proficiency	4.216	0.968
2	ECAs	4.110	0.920

4.3. Inferential Statistics

Drawing conclusions about populations from sample data analysis is made possible by inferential statistics. It indicates if independent observations from the population are included in the sample. When there are groups based on demographic information or other variables, it is utilised for hypothesis testing.

4.3.1. T-test Analysis

To ascertain whether there is a significant difference between the means of two groups, the statistical T-test is utilised. In this study, academic excellence and professional proficiency were compared between the male and female respondents based on the extent of their involvement in the ECAs. The test's T-value was compared to a critical value that was obtained from the T-distribution in order to determine the significance of the discrepancy.

Table 4. T-test Findings for the Gender-Based Comparison of ECA Participation

S. No.	Gender	Mean	F	Significance (p value)
1	Male	4.15	1.09	0.297
2	Female	4.11		

The findings of the T-test used to look at the level of gender-based ECA participation are displayed in Table 4. For male respondents, the mean value of ECA participation remained 4.15, whereas for female respondents, it stayed at 4.11. In comparison to female respondents, men respondents showed a larger mean value difference in ECA participation. Because the computed p value is bigger than 0.05, which is a standard criterion for

significance ($0.297 > 0.05$), the difference is not statistically significant. The p value is used to determine the significance of the results of a statistical test, such as the T-test. Therefore, it can be concluded that men and women who responded to the survey did not significantly differ in their levels of involvement in extracurricular activities.

Table 5 presents the results of a T-test that was used to investigate the gender-based effects of students' involvement in various ECAs on their academic excellence. Academic excellence was found to have a mean value of 3.57 for female respondents and 3.77 for male respondents. The statistical analysis showed that, at the 95 percent confidence interval, the difference in the mean values is significant, even though it is not a large difference. Therefore, it can be concluded from this data that men demonstrate noticeably higher levels of academic excellence than do women.

Table 5. Results of the T-test Comparing Academic Excellence with regard to Gender

S. No.	Gender	Mean	F	Significance (p value)
1	Male	3.77	4.46	0.036
2	Female	3.58		

Similarly, Table 6 shows the outcomes of a T-test that was used to evaluate students' professional proficiency in relation to their gender-based involvement in various ECAs. The average professional proficiency score for respondents who were male appeared at 4.36, whereas the average score for respondents who were female concluded at 4.45. The obtained p-value (0.404) was found to be greater than 0.05, indicating that the observed difference in professional proficiency between genders is likely due to random chance rather than a meaningful difference. Despite the fact that the mean value for females is slightly higher than that of males, the difference is not considered statistically significant. Stated alternatively, the available data does not substantiate the assertion that gender affects professional proficiency within this particular setting. It's critical to remember that this result is unique to the data examined and the statistical test run. Differences in professional proficiency between genders in different circumstances may still be attributed to other causes or variables not taken into account in this study.

Table 6. Results of the T-test comparing Professional Proficiency according to Gender

S. No.	Gender	Mean	F	Significance (p value)
1	Male	4.36	0.697	0.404
2	Female	4.45		

4.3.2. One-way ANOVA Analysis

The study utilised the one-way ANOVA test to investigate the variations in students' ECA participation with respect to their educational programmes and the impact of ECA participation on students' professional proficiency and academic excellence. The main objective of this test was to ascertain whether there was a significant difference between the mean values, which was accomplished by an analysis of variance.

The results of the one-way ANOVA test used to find out the level of ECA partaking based on programme are displayed in Table 7. In comparison to the other two programmes, respondents seeking management degrees (MBA and BBA) had a much higher mean value of ECA participation (i.e., 4.28). For students enrolled in the BCA programme, the lowest mean value of ECA involvement (3.98) persisted. Thus, it is clear that students' involvement in extracurricular activities differs depending on the curriculum they are enrolled in.

Table 7. One-way ANOVA Test Outcomes for Comparing ECA Participation Based on Programme

S. No.	Programme	Mean	F	Significance (p value)
1	B. Tech	4.01	6.91	0.000
2	MBA	4.28		
3	BBA	4.28		
4	BCA	3.98		

Table 8 presents the results of a one-way ANOVA test that was utilised to ascertain the effect of students' involvement in various ECAs on their academic excellence based on the programmes they pursue. In comparison to other programmes, respondents studying management programmes (MBA-3.78, BBA-3.99) had higher mean values of academic excellence gained through ECAs at both the graduate and postgraduate levels. In contrast to MBA students, BBA students demonstrated higher levels of academic excellence in management degrees. Students enrolled in B. Tech programmes had the lowest mean value of academic excellence (3.47). The average academic excellence score for BCA students remained 3.51. Additionally, a significant variance in the mean value of academic excellence among students in various programmes was found, over a 99 percent

confidence interval. Therefore, it can be said that involvement in ECAs effects students' levels of academic excellence greatly depending on the curricula they are enrolled in.

Table 8. One-way ANOVA Test Outcomes for comparing the Effect of ECA participation on the Academic Excellence based on Programme

S. No.	Course	Mean	F	Significance (p value)
1	B. Tech	3.47	11.06	0.000
2	MBA	3.78		
3	BBA	3.99		
4	BCA	3.51		

Similarly, one-way ANOVA test results for accessing the effects of ECAs on the professional proficiency of students based on their programmes of study are given in Table 9. The mean value of professional proficiency was found highest for MBA and BBA students (4.49). Professional proficiency acquired through ECAs for students pursuing management programmes came out to be same at both graduate and postgraduate levels. The mean value of professional proficiency remained lowest for students pursuing BCA (4.29). Professional proficiency value for students pursuing B. Tech was 4.37. The respondents across all the programmes showed an overall higher mean value for professional proficiency. The difference is not significant at 95 percent confidence interval, but it is surely significant at 90 percent confidence interval. However, study considers 95 percent as confidence interval for assessment. Hence, it can be said that no significant difference in the professional proficiency of students was found based on their study programmes with respect to their participation in ECAs.

Table 9. One-way ANOVA Test Outcomes for comparing the Effect of ECA participation on Professional Proficiency based on Programme

S. No.	Course	Mean	F	Significance (p value)
1	B. Tech	4.37	2.23	0.083
2	MBA	4.49		
3	BBA	4.49		
4	BCA	4.29		

4.3.3. Structural Equation Modelling (SEM)

The Structural Equation Modelling (SEM) analysis was conducted to study the hypothesized relationships between academic excellence, professional proficiency and participation in ECAs, in congruence. It involved analysis of latent variables and measured variables. SEM is based on the assessment of the measurement model and structural model. The correlation between measured variables and their corresponding constructs is assessed by the measurement model. The structural model assesses the relationship between different constructs. In other words, SEM analysis was performed to test the conceptual model for the study.

4.3.3.1. Measurement Model Evaluation

The estimation of confirmatory factor analysis is divided into two parts: construct reliability evaluation and convergent and discriminant validity evaluation.

Construct Reliability

Construct reliability (CR) is a measure to assess the uniformity of measured variables with their respective constructs. The value of construct reliability should remain greater than 0.6 for significant results [47]. The results of SEM analysis in Table 10 clearly indicate that the value of Construct Reliability (CR) for all study variables was found to be greater than 0.6. Therefore, construct reliability for the proposed model was found satisfied.

Table 10. Construct Reliability (CR) for the Measurement Model Evaluation

S. No.	Construct	CR	AVE	Square Root of AVE	MSV
1	Academic Excellence	0.75	0.61	0.781	0.19
2	Professional Proficiency	0.84	0.61	0.781	0.21
3	ECA	0.90	0.76	0.871	0.55

Convergent Validity

The degree to which various assessment items or indicators of the same construct measure the same underlying concept is known as convergent validity. A metric called Average Variance Extracted (AVE) evaluates how much variance the construct captures in relation to the measurement error. The Average Variance Extracted (AVE) for each construct was found to be more than 0.5, as demonstrated by the results (Table 10). Good convergent

validity is shown when the AVE value is greater than 0.5, which implies that the construct's indicators account for more than 50% of the variance.

Discriminant Validity

The concept of discriminant validity was proposed by Campbell and Fiske in 1959 [48]. It assesses if the variables that should be unrelated are actually unrelated i.e. the measured variables of a construct are not related to other constructs. If a study has issues with convergent validity, that is, if the latent factor is not well explained by its observable variables, then variables do not correlate well inside their parent factor. When discriminant validity is compromised, then some other variables (from a different factor) better explain the latent factor than its own observed variables. This means that variables have a stronger correlation with variables outside of their parent factor than with those inside it. Thus, the degree to which various constructs in a study differ from one another is referred to as discriminant validity. It assures that the constructs measure distinct underlying concepts and are not substantially correlated. The correlation between the constructs should not be higher than the square root of the Average Variance Extracted (AVE), according to a suggestion by Fornell and Larcker (1981) [49]. The values of AVE can be observed from Table 10 and the values of correlation are presented below in Table 11.

Table 11. Correlation between the constructs of the study

S. No.	Construct	Academic Excellence	Professional proficiency	ECA
1	Academic Excellence	0.75		
2	Professional proficiency	0.5	0.76	
3	ECA	0.86	0.76	0.84

As demonstrated by Tables 10 and 11, the model was found to satisfy the discriminant validity criterion as the mean square root of variance (MSV) stayed smaller than the AVE and the square root of the AVE remained larger than the correlation between the components. Therefore, this study's results demonstrated high discriminant validity (MSV < AVE; square root of AVE greater than inter-construct correlations) and overall convergent validity (AVE > 0.5). These results supported the validity of the measurement model employed in the study by showing that the indicators or measurement items for each construct are capturing the desired concept and that the constructs are distinct from one another.

4.3.3.2. Structural Model Evaluation (Path Analysis)

The measurement model evaluation for the SEM analysis was also completed and found satisfied. Structural Model Evaluation, also referred as path analysis, is used to evaluate and describe various dependencies amongst variables (dependent and independent); it is a form of multiple regression analysis for evaluation of the proposed model. This evaluation provides path estimates (β) values that show strength of relation amongst hypothesized variable relations. It involves verifying fitness indices. SEM results generate two types of indices, goodness of fit and badness of fit. The goodness of fitness indicators are Normed Fit Index (NFI), Comparative Fit Index (CFI), Goodness-of-Fit Index (GFI), Tucker Lewis Index (TLI) and Chi square. The badness of fit indicators is RMSEA (Root Mean Square Error of Approximation). Hence, all the model fitness indicators were checked at this level. The structural model was initially formulated based on the conceptual model. Structural Model Evaluation was carried out to understand relation between ECA (independent variable) and two dependent variables i.e., Academic Excellence as well as Professional Proficiency. The obtained fitness indices for the model have been shown in Table 12 and were found to be a good fit (i.e. $\chi^2/df=1.7$; CFI = 0.99; TLI = 0.947; RMSEA = 0.057) as recommended by Hair et al. (2010) [50]. Therefore, as suggested by Podsakoff et al. (2003), the obtained results were found to be acceptable [51].

The model derived after evaluation is presented in the Figure1. The figure is an abstraction of AMOS diagram to ensure that all the observed variables and their loadings are visible. However, in order to enhance the clarity of the figure, the error terms have not been included. It contains 03 latent variables and 25 observed variables. Among the two dependent variables of ECA, professional proficiency demonstrated the strongest relationship with ECA followed by academic excellence. Therefore, it can be inferred that ECA holds a significant and positive relation with professional proficiency ($p=0.003$) and academic excellence ($p=0.004$) of the students.

Table 12. Fitness Indices of the Model

S. No.	Indicator	Saturated Model Indices	Acceptable Range
1	CFI	0.99	> 0.9
2	NFI	0.97	> 0.9
3	GFI	0.98	> 0.9
4	TLI	0.947	> 0.9
5	RMSEA	0.057	< 0.05
6	Chi-Square	P value is < 0.05	p value < 0.05

All the variables of professional proficiency were retained, however, some variables of academic excellence, were removed in order to improve the model. The model thus formulated, satisfied the SEM assumptions indicating significant relationships amongst the study variables.

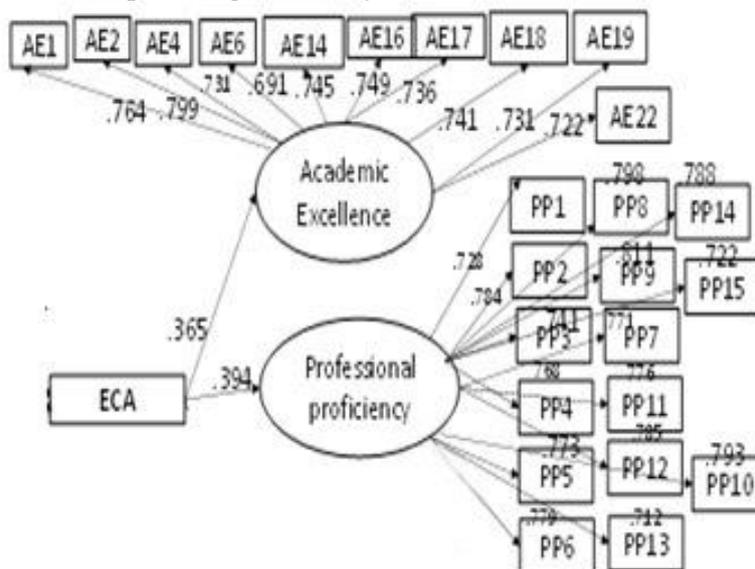


Figure 1. Structural Model

Moving forward, it was crucial to confirm the model's path coefficients and the t ratio values. A good fit model requires the path coefficient values to be larger than 0.1 and the t ratio values to be greater than 1.96 (Ketchen, 2013) [52]. Table 13 unequivocally shows that the calculated values of the dependent variables' t ratios and path coefficients with regard to the independent variable meet the necessary criteria. There was a noteworthy correlation observed between the three latent variables that were being examined.

Table 13. Path Coefficients and t Ratios

S. No	Variables	ECA	
		Path Coef.	t Ratio
1	Academic Excellence	0.365	5.211
2	Professional proficiency	0.394	5.846

Because, the relationship among latent variables were found significant, hypotheses proposed to assess these relationships can be evaluated. Analyzing the hypotheses through results of SEM indicated a positive support for the proposed hypotheses. Table 14 shows the respective hypotheses with the obtained beta (β) values and p values. Since, all the conditions for SEM were found satisfied and the relationship among latent variables came out to be significant, the hypotheses H_a and H_b are acceptable.

Table 14. Hypothesis Results

S. No.	Hypotheses	Beta Estimate (β)	S Error	P value	Supported (Yes/No)
H_a	ECA \rightarrow Academic Excellence	0.240	0.062	0.004	Yes
H_b	ECA \rightarrow Professional Proficiency	0.192	0.076	0.003	Yes

5. Conclusion

The primary goal of the study was to determine if involvement in extracurricular activities exerts positive effects on the academic excellence and professional proficiency of students enrolled in professional degrees at higher education institutions. The results of the T-tests unequivocally showed that if extracurricular activities help male students achieve more academic success, then participating in different extracurricular activities also helps female students achieve greater professional proficiency. Subsequently, one-way ANOVA findings presented categorically that students belonging to management programmes (BBA and MBA) exhibited more beneficial benefits of ECA involvement on their academic excellence and professional proficiency than students of the other two academic fields. Finally, the study revealed noteworthy correlations between the examined latent variables, and the SEM model was also determined to be a good fit. The obtained t ratio values and the generated path coefficients were also found to satisfy the necessary requirements, indicating that the suggested hypotheses were acceptable. On the whole, the results remained quite apparent in showing that students'

participation in extracurricular activities has a positive and beneficial influence on their academic excellence and professional proficiency.

Conflict of Interest

There is no conflict of interest with regard to this publication.

Acknowledgments

I am grateful for the support I received during this research work from the Chandigarh Group of Colleges, Landran. I also want to express my gratitude to Chandigarh University, Mohali for giving me the chance to work towards my Ph.D.

References

- [1] Kanaeva, T. A. (2012). The concept of “extra-curricular activities” in the aspect of professional development of students of secondary vocational education. Retrieved from <http://www.sisp.nkras.ru>
- [2] Greene, K. M. & Maggs, J. L. (2015). Revisiting the time trade-off hypothesis: Work, organized activities, and academics during college. *Journal of Youth and Adolescence*, 44 (8), 1623-1637. <http://dx.doi.org/10.1007/s10964-014-0215-7>
- [3] Conway, A. (2009). An investigation into the benefits of extracurricular activities like Clubs and Societies to students and colleges: Are these benefits evident in the opinions and perceptions of staff and students in DIT? B. Sc. Dublin Institute of Technology.
- [4] De Lange, G. (2000). The identification of the most important non-technical skills required by entry level engineering students when they assume employment. *Journal of Cooperative Education and Internships*, 35 (2-3), 21-32. <https://wilresearch.uwaterloo.ca/Resource/View/542>
- [5] Vandell, D. L., Larson R. W., Mahoney J. L. & Watts T. W. (2015). Children’s organized activities. In Bornstein M. H., Leventhal T., Lerner R. (Eds.), *Ecological settings and processes in developmental systems: Handbook of child psychology and developmental science*, 4, 7th Ed., 305–344. John Wiley. <https://doi.org/10.1002/9781118963418.childpsy408>
- [6] Jones, R. (2017). The student experience of undergraduate students: towards a conceptual framework. *Journal of Further and Higher Education*, 42 (8), 1040–1054. <https://doi.org/10.1080/0309877X.2017.1349882>
- [7] Geraghty, J. (2010). Investigation into awareness of and involvement in Trinity Collage societies. *Trinity Collage Dublin: Central Societies Committee*
- [8] Cambridge Assessment International Education. (2018). Indian students show high resilience to pressure with an active schedule. Retrieved from <https://www.cambridgeinternational.org/news/news-details/view/indian-students-show-high-resilience-to-pressure-with-an-active-schedule-nov2018>
- [9] Brown, P., Lauder, H. & Ashton, D. (2011). *The Global Auction: The Broken Promises of Education, Jobs and Incomes*. Oxford University Press. <https://researchportal.bath.ac.uk/en/publications/the-global-auction-the-broken-promises-of-education-jobs-and-inco>
- [10] Linan, F. & Chen, Y. W. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions, *Entrepreneurship Theory and Practice*, 33 (3), 593-617. <https://doi.org/10.1111/j.1540-6520.2009.00318.x>
- [11] Dohse, D. & Walter, S. G. (2010). The role of entrepreneurship education and regional context in forming entrepreneurial intentions (No. 2010, 18). Document de treball de l'IEB. <https://www.econstor.eu/handle/10419/59753>
- [12] Eccles, J. S. & Barber, B. L. (1999). Student council, volunteering, basketball, or marching band: What kind of extracurricular involvement matters? *Journal of Adolescent Research*, 14, 10-43. <https://doi.org/10.1177/0743558499141003>
- [13] Youniss, J., Bales, S., Christmas-Best, V., Diversi, M., McLaughlin, M. & Silbereisen, R. (2002). Youth civic engagement in the twenty-first century. *Journal of Research on Adolescence*, 12 (1), 121–148. <https://doi.org/10.1111/1532-7795.00027>
- [14] Gilman, R., Meyers, J. & Perez, L. (2004). Structured Extracurricular Activities among Adolescents: Findings and Implications for School Psychologists. *Psychology in Schools*, 41, 31-41. <http://dx.doi.org/10.1002/pits.10136>
- [15] Mahoney, J. L. & Stattin, H. (2000). Leisure activities and adolescent antisocial behavior: The role of structure and social context. *Journal of Adolescence*, 23 (2), 113-127. <https://doi.org/10.1006/jado.2000.0302>
- [16] Keenan, L. (2010). The effect of extracurricular activities on career outcomes: a literature review. *Student Psychology Journal*, 1, 149–162. <https://www.semanticscholar.org/paper/HE-EFFECT-OF-EXTRACURRICULAR-ACTIVITIES-ON-CAREER-%3A-Keenan/3be7cddb50a6ddoe3f19beefb2da4d27f7f91a16>
- [17] Eccles, J. S., Barber, B. L., Stone, M. & Hunt, J. (2003) Extracurricular activities and adolescent development. *Journal of Social Issues*, Vol. 59 (4), 865-889. <https://doi.org/10.1046/j.0022-4537.2003.00095.x>

- [18] Mukesh, H.V., Acharya, V. & Pillai, R. (2023). Are extracurricular activities stress busters to enhance students' well-being and academic performance? Evidence from a natural experiment. *Journal of Applied Research in Higher Education*, 15 (1), 152-168. <https://doi.org/10.1108/JARHE-06-2021-0240>
- [19] Nguyen, N. N. (2022). Research on the impact of extracurricular activities on academic achievement of students: a case of students majoring in the Japanese language of FPT University. *Journal of Positive School Psychology*, 6 (2), 3808 – 3814. <https://journalppw.com/index.php/jpsp/article/view/2474/1556>
- [20] Kravchenko, Z. & Nygard, O. (2022). Extracurricular activities and educational outcomes: evidence from high-performing schools in St Petersburg, Russia. *International Studies in Sociology of Education*. <https://doi.org/10.1080/09620214.2021.2014933>
- [21] Abuelenain, G., Farooq, M. & Sarr, M. (2021). The impact of co-curricular activity assessment on male university students' course performance: a case study of the natural sciences course. *International Journal of Higher Education*, 10 (4), 187-195. <https://doi.org/10.5430/ijhe.v10n4p187>
- [22] Buckley, P. & Lee, P. (2021). The impact of extra-curricular activity on the student experience. *Active Learning in Higher Education*, 22 (1), 37-48. <https://doi.org/10.1177/1469787418808988>
- [23] Kocayigit, A. & Ekinçi, N. (2020). Ortaöğretim okullarında uygulanan program dışı etkinliklerin öğretmen görüşlerine göre değerlendirilmesi. *OPUS International Journal of Society Researches*, 16 (29), 1810-1848. <https://doi.org/10.26466/opus.749109>
- [24] Ahmad, M., Rahman, M. F., Ali, M., Rahman, F. N. & Al Azad, M. A. S. (2019). Effect of extra curricular activity on student's academic performance. *Journal of Armed Forces Medical College*, 11 (2), 41-46. <https://doi.org/10.3329/jafmc.v11i2.39822>
- [25] Salmeen, A., Alkhalidi, N., Alshaber, R. & Majrashi, T. (2019). Extracurricular activities and student performance at Jubail University College. *International Journal of Liberal Arts and Social Science*, 7 (1), 55-61. <https://ijlass.org/data/frontImages/articles/Vol.7No.1/4.55-61.pdf>
- [26] Rathore, K., Chaudhry, A. Q. & Azad, M. (2018). Relationship between co-curricular activities and exam performance: mediating role of attendance. *Bulletin of Education and Research*, 40 (1), 183-196. <https://files.eric.ed.gov/fulltext/EJ1210004.pdf>
- [27] Clark, G., Marsden, R., Whyatt, J. D., Thompson, L. & Walker, M. (2015). 'It's everything else you do...': Alumni views on extracurricular activities and employability. *Active Learning in Higher Education*, 16 (2), 133-147. <https://doi.org/10.1177/1469787415574050>
- [28] Seow, P.-S. & Pan, G. (2014). A literature review of the impact of extracurricular activities participation on students' academic performance. *Journal of Education for Business*, 89 (7), 1-6. <https://ssrn.com/abstract=2491196>
- [29] Suleman, Q., Aslam, H.D. & Hussain I. (2014). Effects of classroom physical environment on the academic achievement scores of secondary school students in Kohat Division, Pakistan. *International Journal of Learning and Development*, 4 (1), 71-82. <http://dx.doi.org/10.5296/ijld.v4i1.5174>
- [30] Shamsudin, S., Ismail, S. F., Al-Mamun, A. & Nordin, S. K. B. S. (2014). Examining the effect of extracurricular activities on academic achievements among the public university students in Malaysia. *Asian Social Science*, 10 (9), 171-177. <http://dx.doi.org/10.5539/ass.v10n9p171>
- [31] Burgess, J. (2013). Extracurricular school activities and the benefits. *More4kids*. Retrieved from www.education.more4kids.info/168/extracurricular-school-activities/
- [32] Wormington, S. V., Corpus, J. H. & Anderson, K. G. (2012). A person-centered investigation of academic motivation and its correlates in high school. *Learning and Individual Differences*, 22 (4), 429-438. <https://doi.org/10.1016/j.lindif.2012.03.004>
- [33] Craft, S. W. (2012). The impact of extracurricular activities on student achievement at the high school level. *Dissertations*, 543. <https://aquila.usm.edu/dissertations/543>
- [34] Knifesend, C. A. & Graham, S. (2012). Too much of a good thing? How breadth of extracurricular participation relates to school-related affect and academic outcomes during adolescence. *Journal of Youth and Adolescence*, 41(3), 379-389. <https://doi.org/10.1007/s10964-011-9737-4>
- [35] Rivera, M. (2010). Extracurricular activities helped improved grades. Retrieved from www.northjersey.com/news/80680527.html
- [36] Covay, E. & Carbonaro, W. (2010). After the bell: participation in extracurricular activities, classroom behavior, and academic achievement. *Sociology of Education*, 83 (1), 20-45. <https://doi.org/10.1177/0038040709356565>
- [37] Reeves, D. (2008). The learning leader / The extracurricular advantage. *Education Leadership*, 66 (1), 86-87. <https://www.ascd.org/el/articles/the-extracurricular-advantage>
- [38] Archer, W. & Davison, J. (2008). Graduate employability: what do employers think and want? *The Council for Industry and Higher Education (CIHE)*, London. Retrieved from <http://hdl.voced.edu.au/10707/97377>
- [39] Watts, A. G. (2006). Career development learning and employability. *The Higher Education Academy*. Retrieved from <https://www.qualityresearchinternational.com/esecttools/esectpubs/watts%20career.pdf>
- [40] Darling, N., Caldwell, L. L. & Smith, R. (2005). Participation in school-based extracurricular activities and adolescent adjustment. *Journal of Leisure Research*, 37 (1), 51-76. <https://doi.org/10.1080/00222216.2005.11950040>

- [41] Taras, H. (2005). Physical activity and student performance at school. *The Journal of School Health*, 75 (6), 214–218. <https://doi.org/10.1111/j.1746-1561.2005.00026.x>
- [42] Encyclopaedia Britannica. (2023). Student's t-test. Retrieved from <https://www.britannica.com/science/Students-t-test>
- [43] Zar, J. H. (1999). Biostatistical analysis. Pearson Education, India. https://scholar.google.com/scholar_lookup?andtitle=Biostatistical%20analysisandpublication_year=1999andauthor=Zar%2CJH
- [44] Field, A., Miles, J. & Field, Z. (2012). Discovering statistics using R. Sage Publications Ltd., London. <https://uk.sagepub.com/en-gb/eur/discovering-statistics-using-r/book236067>
- [45] Kumar, P. (2016). ANOVA (Analysis of Variance). Retrieved from <https://www.linkedin.com/pulse/anova-analysis-variance-kumar-p>
- [46] Kline, R. B. (2016). Principles and Practice of Structural Equation Modeling (4th ed.). New York, NY: The Guilford Press. https://www.researchgate.net/profile/Cahyono-St/publication/361910413_Principles_and_Practice_of_Structural_Equation_Modeling/links/62cc4foed7bd92231faa4db1/Principles-and-Practice-of-Structural-Equation-Modeling.pdf
- [47] Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2014). A Primer on Partial Least Squares Structural Equation Modelling (PLS-SEM). Los Angeles: SAGE Publications. Retrieved from https://www.researchgate.net/publication/311573689_A_Primer_on_Partial_Least_Squares_Structural_Equation_Modeling_PLS-SEM
- [48] Campbell, D. T. & Fiske, D. W. (1959). Convergent and discriminant validation by the multitrait-multimethod matrix. *Psychological Bulletin*, 56 (2), 81-105. <https://doi.org/10.1037/h0046016>
- [49] Fornell, C. & Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research*, 18 (1), 39-50. <https://doi.org/10.2307/3151312>
- [50] Hair, J. F., Black, W. C., Babin, B. J. & Anderson, R. E. (2010). Multivariate Data Analysis. 7th Edition, Pearson, New York. <https://www.drnishikantjha.com/papersCollection/Multivariate%20Data%20Analysis.pdf>
- [51] Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y. & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88 (5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- [52] Ketchen, D. J. (2013). A primer on partial least squares structural equation modeling. *Long Range Planning*, 46 (1-2), 184-185. <https://doi.org/10.1016/j.lrp.2013.01.002>