

Extracurricular Activities and academic performance among University Students

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Abstract

This study aims to investigate the impact of extracurricular activities (ECA) on student success. Based on the Stimulus-Organism-Response (SOR) model, this study investigates how ECA act as stimuli that triggers inner psychological changes, which, in turn, help students to develop cognitive, social, and emotional skills. A mixed-methods approach was used combining qualitative with quantitative anal to collect data. Data was collected from a diversified pool of students across various academic institutions. Structural equation modelling (SEM) was employed to analyse the data and test the proposed model. Our findings emphasize the significance of including extra-curricular activities in students' educational curricula to foster the overall development of the learner. Universities are invited to promote and expand various extracurricular programs and entice students to take part of the various programs for a better educational outcome. The application of the SOR model is to be considered as our major contribution.

Keywords: Extracurricular activities; Academic performance; SOR model

1. Introduction

The impact of extracurricular activities (ECA) in the context of academic achievement is increasingly garnering research interest. Studies have shown that ECA are more and more recognized not only through their recreational value but also for their substantial contributions to students' academic personal and academic development. These activities, while ranging from sports, arts, volunteering, present significant and unique challenges that can have a concrete impact on academic performance. Referring to the Stimulus-Organism-Response (SOR) model (Mehrabian & Russell, 1974), extracurricular activities act as an off-campus stimulus of the internal psychological processes, leading thereby to the enhancement of the personal and academic outcomes of the participants. This framework not only explains the catalytic roles of interactions within various activities but also establishes how such interactions initiate the

pertinent development required in students (Mehrabian & Russell, 1974). More studies have shown that ECA enhance not only cognitive but also emotional critical thinking. Jensen (2013) says that these activities build emotional intelligence and problem-solving in students by facilitating strong social relationships and challenging them to manage time and solve real-world problems. In the modern world, these skills are increasingly in demand as academic environments become more and more competitive. Besides this aspect, extracurricular activities that are practiced regularly have been shown to give students a great boost of confidence and a satisfactory level of mental health which allows them to be readily equipped with the resilience and capabilities to transition into a future professional landscape (Smith, 2015). ECA is a wider road to enhance individual attributes that further develop strong ties, which finally improve self-knowledge and make clearer career decisions. Such a wholesome development is poignant because, in addition to preparing a student in academia, it makes one socially and emotionally ready to handle the complexities of adult life. ECA offer a stage for experiential situations that a regular classroom does not typically provide. By virtue of these activities, learners acquire first-hand learnings in the technique of teamwork, leadership, and public speech that are inevitable in a higher-education environment as well as in the work environment. From personal growth, the merits go on to create a network of bonding and participation amongst the participants, ultimately driving school spirit and solidarity. How participation in extracurricular activities influences students' academic performance and social integration? The rest of this paper is organized as follow: Section 2 present a literature review. Methods are introduced in section 3, sections 4 shows results and analysis, conclusion is presented in section 5.

2. Literature review

The SOR theory, first developed by Mehrabian and Russell in 1974, provides a conceptual framework for explaining how external stimuli influence individual responses through internal cognitive and emotional mechanisms. The sequence is spelled out as S-O-R: the environmental stimuli activate internal organismic states of the individuals, which consequently evoke certain responses. Stimuli are external factors, which can be physical, social, or situational in nature, through which individuals experience them. They may be tangible, such as components of environmental contexts, including social interactions, or intangible, including cultural norms and expectations (Jacoby, 2002). Engaging in ECA suggests participation in sports, clubs, or competitions that allow for development of different skills, promotes engagement, and support physiological activity for ECA. The SOR theory, therefore, is particularly helpful in the understanding of ECAs' effects since activities within ECA act to the students as stimuli for developing an emotional and cognitive state and finally determining behaviors and outcomes. Zhang et al. (2022) describe extracurricular activities as voluntary, organized programs that promote personal and social development. Prior research, like Malin's (2022), has shown that ECA provide a way to build interpersonal skills like communication, cooperation, and

leadership via frequent collaborative contacts. Mariano et al. (2021) found a positive link between ECA involvement and interpersonal success; on the other hand, a lack of engagement restricts such people. According to Malin (2022), intellectual participation in ECA enhances cognitive capacities such as critical thinking and problem solving. Activities such as arts, discussions, and research require participants to examine and synthesize information, which Zhang et al. (2022) discovered to increase cognitive flexibility and adaptability. Kanar and Bouckennooghe (2021) claim that involvement in a variety of ECA promotes analytical thinking, but Bundick (2011) records that the degree of interaction matters. Hence: **H1- Engagement in ECA positively affects perceived soft skills enhancement; H2- Engagement in ECA positively affects cognitive abilities.** Student motivation, defined as the intrinsic drive to pursue goals in the article, is significantly influenced by purpose-driven ECA (Malin, 2022). These activities, which relate to personal interests, provide a sense of belonging and responsibility which leads to a continuous involvement. Zhang et al. (2022) discovered that reflective ECA like volunteering or leadership programs, increased intrinsic motivation, whereas irrelevant activities had no impact (Bundick, 2011a). therefore: **H3- Engagement in ECA positively affects student motivation. Self-regulated learning** is a significant predictor of academic performance (Zhang et al., 2022). Goal setting, time management, and strategic thinking are common requirements in ECA, all of which improve self-discipline and academic achievement. For example, Malin (2022) discovered that students who participated in ECA such as athletics or governance had higher self-regulation abilities, which enhanced their academic performances. While differences occur based on the activity, this study looks into how these talents transform into improved academic achievements. Hence: **H4- Self-regulated learning positively influences academic achievement. Self-regulation** is an essential constituent of learning as it enables students to plan and scale their learning strategies. This dimension is developed through structured extracurricular activities (ECA). Griffiths and Jackson (2021) argue that ECA enhance self-regulation since students are tasked with setting targets, planning, evaluating and modifying their actions. leaders in training or students in debate clubs develop the ability to think strategically and be self-disciplined. Based on the above, we hypothesize that: **H5- Engagement in ECA has a positive effect on self-regulated learning.**

Physical activity, which can be understood as those bodily movements including playing sports and exercising, tends to have a positive correlation with academic performance. Chen and his colleagues (2020) reported that involvement in physical extracurricular activity lets the students feel less burden, focus better and even perform better cognitively, which overall, makes them excel in Academics. Therefore: **H6- Physical activity positively influences academic achievement. Student motivation to perform well is the** internal drive to achieve good grades can be by students participation in ECA. ECA greatly increase students' motivation by further engaging them in tasks that are relevant to their aspirations, Griffiths and Jackson (2021). Participants' motivation seems to rise in proportion with their satisfaction and success because

they can relate their efforts with the outcomes achieved through the ECA. A personal achievement is the feeling or satisfaction which one derives after reaching a certain meaningful goal. Such a feeling contributes a lot to a student's academic success. According to Ginosyan et al. (2020), students that win in ECA usually develop self-efficacy which they translate to curricular performance and therefore high grades and self-confidence. Experience of these programs enhances achievement in other areas. So: **H7- Student motivation positively mediates the relationship between engagement in ECA and personal accomplishment.** **Perceived overqualification** describes a situation or a feeling in which someone believes that he possesses more skills or is more knowledgeable than the requirements of a specific role. Participation in extra-curricular activities (ECA) is said to enable students acquire higher level **competences** such as leadership, critical thinking, and interpersonal skills as noted by Buckley and Lee (2021), which are always not limited to the requirements of the studies. Munir and Zaheer (2021) also stress the role of such ECA in developing students' potentials in online learning environments through competitions and joint activities that boost their confidence and self-perception of over qualification. Hence: **H8- Personal accomplishment contributes positively to academic achievement, H9-Engagement in ECA has a positive effect on perceived overqualification.** **Activity** is fundamental to health and certainly well-being and as it is the participation in the ECA that renders this in most cases. In Ribeiro et al. (2024), it has been suggested that ECA participation which may include sporting and recreational clubs encourages participation on a regular basis in physical activity with a focus on improving physical fitness and mental health. This is supported by Buckley and Lee (2021), where the authors describe the expectations of ECA as defining the context in which students are active and participative in exercising and not reverse. Thus, we put forth that: **H10- Engagement in ECA has a positive effect on students' physical activity.** **Student satisfaction** is a feeling of contentment in students once they go through extracurricular activities. Buckley and Lee (2021) argue that being involved in extracurricular activities (ECA) creates a room for interaction amongst students, acquisition of skills, and achievement which leads to satisfaction. According to Ribeiro et al. (2024), students can get a good perception of their education because ECA help them to cope with difficult studies and at the same time have good social and developmental experiences. Students who **are satisfied with their courses** are likely to perform better in their academics since they get more motivated to work on their studies (Ribeiro et al., 2024). **Student satisfaction** operates as to mediate students' expectations and experiences making them more attentive and to performing better academically (Buckley and Lee, 2021). Munir and Zaheer (2021) show that satisfaction, derived from enjoyable ECA, facilitates psychological engagement and academic effort towards persistence in unusual settings. Ribeiro et al. (2024), states that students who are motivated tend to perform better academically since they are more willing to work and get involved with their work. Motivation may serves as a mediating variable, reconciling student anticipation with experience and subsequently improving their attention and academic performance (Buckley and Lee, 2021). Motivated students in distance learning

environments are more likely to actively participate in ECA, resulting in increased self-efficacy and personal growth (Munir and Zaheer, 2021). Finally, Among the skills deemed important in any academic and professional undertaking, soft skills such as communication, teamwork and problem-solving are critical Ribeiro et al. (2024) argue that ECA foster such learn-by-doing competences that encourage the students to team up and tackle problems. Students who have a good grip of soft skills will show better handling of group work dynamics in academic activities and as a result perform better academically (Buckley and Lee 2021) Therefore: **H11- Engagement in ECA positively affects student satisfaction toward their own curriculum; H12- Student satisfaction positively influences academic achievement; H13- Student motivation positively influences personal accomplishment; H14- Perceived Soft Skills positively influence Academic Achievement.**

3. Method

Nonprobability sampling method combining convenience and snowball sampling methods was used (Chetioui & Abbar, 2017). The sample included 200 respondents from different age groups and backgrounds. Participants rated these items on a five-point Likert scale. Demographic information including gender, age, and Education level was collected. The qualitative data regarding the extra-curricular activities were gathered through a focus group composed of seven students who were either over-involved in activities or those who were less involved. This diversity made it possible to obtain a wide range of experiences and perspectives. The study sessions took a duration of more than 40 minutes where participants were able to have elaborative discussions about the 18 open-ended given questions. Ideally, these questions were meant to understand the reasons behind the incidences of involvement in certain extra-curricular activities and their impact on performance, peer relations, and career ambitions (*Results of the qualitative methods can be shared upon request*). 45% of respondents were females and 55% males. 18 to 25 years age range made 81% of the sample followed by people falling within 26 to 30 years age range 12% and most of the respondents were undergraduates (42%). Regarding involvement in extracurricular activities (ECA), most participation to sports activities making it 42% while community service activities were 17%, clubs 13%, arts 12% and 16% accounted other activities. The sample comprises students from semi-public universities (43%) and private universities (39%) among others. In terms of amounts of time spent on ECA in a week, 31% spent 1-3 hours and 30% spent 3-5 hours. (*respondents' profile available upon request*).

4. Results

A structural equation modeling has been applied to evaluate the underlying relationships in the proposed conceptual model (Hair et al., 2019). The reliability of the construct was assessed and Cronbach Alpha (CA) and composite reliability (CR) of all constructs exceed 0.7, suggesting

the sufficiently construct reliability (Henseler et al., 2009; Lebdaoui et al., 2022; Chetioui et al., 2023). The loadings of all items are higher than 0.7, thus supporting the indicator reliability (Henseler et al. 2009). Average variance extracted (AVE) for all constructs were found to be greater than 0.5, which guarantees the convergent validity. Furthermore, the discriminant validity was confirmed (*Discriminant validity results; CR, CA, AVE and HTMT results can be shared upon request*). Our model's R-square of 48.7%, which in the interpretation of predictive power is generally considered as high (Cohen, 1992). The direct impacts of our model are reported in Table 1 Remarkably, involvement in activities outside of the regular academic curriculum (ECA) is the key driver for diverse outcomes one may look for. Active Participation in ECA's has been found to have significant effects on students in terms of engagement, self-perceived soft skills development, and self-regulated learning ($\beta = 0.521$, $p < 0.001$; $\beta = 0.423$, $p < 0.001$; $\beta = 0.402$, $p < 0.001$; respectively). Engagement also has a positive relationship with feeling high levels of personal accomplishment as $\beta = 0.438$, $p < 0.001$, and may also assist or impact on cognitive performance as $\beta = 0.348$, $p < 0.001$ which suggests some improvement in both psychological and cognitive development. Exercise helps perform on schoolwork with the lowest beta of 0.118 and a non-significant p-value of 0.289 that shows one on one relation is minimal. It is worth noticing that, feeling overqualified ($\beta = 0.228$, $p = 0.023$) and using self-control ($\beta = 0.387$, $p < 0.001$) explain one's level of performance better suggesting that these mediating factors have a role in performance. However, high levels of personal accomplishment construct and perceived levels of soft skills didn't explain academic performance significantly ($p > 0.05$) which shows that not all constructs contribute to the same degree. Furthermore, self-regulated learning significantly moderates the relationship between the engagement in extracurricular activities and academic achievement with $\beta = 0.387$; $p < 0.001$, showing that it plays a critical role in translating ECA participation into improved academic performance. On the contrary, the motivational level of the students does not serve as a moderator for the link between ECA participation and academic performance ($\beta = 0.08$; $p > 0.05$), indicating that motivation indeed is an important element, but it alone cannot strengthen this connection.

5. Discussion and Conclusions

The research findings provide a comprehensive exploration of the impact ECA on student outcomes. While prior studies generally highlight the positive effects of ECA on academic performance and personal growth (Zhang et al., 2022; Malin, 2022; Griffiths & Jackson, 2021), this study presents nuanced insights into the varied roles of different constructs. Specifically, while engagement in ECA significantly enhances student satisfaction, self-regulated learning, and perceived soft skills, these effects are context-dependent. Interestingly, this research also sheds light on the role of self-regulated learning and student motivation as moderating variables. Self-regulated learning was found to significantly strengthen the relationship between ECA participation and academic achievement, highlighting its critical role in helping students manage

Table 1 Direct relations

		Beta	SD	T- stat.	P- value
H1	Cognitive Abilities -> Academic Achievement	0.152	0.113	1.344	0.179
H2	Engagement in ECA -> Cognitive Abilities	0.348***	0.107	3.244	0.001
H3	Engagement in ECA -> Personnal Accomplishment	0.438***	0.106	4.139	0.000
H4	Engagement in ECA -> Perceived Overqualification	0.332**	0.133	2.499	0.012
H5	Engagement in ECA -> Student Motivation	0.367***	0.108	3.393	0.001
H6	Engagement in ECA -> Self-regulated learning	0.402***	0.121	3.323	0.001
H7	Engagement in ECA -> Perceived Soft Skills	0.435***	0.098	4.446	0.000
H8	Engagement in ECA -> Student Satisfaction	0.521***	0.09	5.824	0.000
H9	Physical Activity -> Academic Achievement	0.118	0.098	1.199	0.230
H10	Personnal Accomplishment -> Academic Achievement	-0.013	0.14	0.091	0.928
H11	Perceived Overqualification -> Academic Achievement	0.228*	0.119	1.911	0.056
H12	Student Motivation -> Academic Achievement	0.081	0.148	0.541	0.588
H13	Self-regulated learning -> Academic Achievement	0.387***	0.104	3.732	0.000
H14	Perceived Soft Skills -> Academic Achievement	-0.115	0.145	0.795	0.427
H15	Student Satisfaction -> Physical Activity	0.562***	0.093	6.016	0.000

their academic responsibilities effectively. On the other hand, student motivation, while important, did not emerge as a significant moderator, underscoring the complex interplay between motivational states and academic outcomes. The findings also align with previous studies on the positive influence of physical activity and cognitive engagement through ECA on student development (Chen et al., 2020; Kanar & Bouckennooghe, 2021). This study offers valuable insights for educational institutions aiming to optimize the benefits of ECA. Specifically, fostering self-regulated learning and creating structured ECA programs tailored to enhance cognitive abilities, and satisfaction can significantly enhance academic outcomes. Furthermore, the diverse influences of ECA emphasize the need for personalized approaches that account for the varied needs and profiles of students. This study has a few limitations: ECA could be explored un different countries, and a longitudinal approach to measuring ECA over may capture disparities in findings. Future research may break down activities by type (e.g. physical vs cultural for example) as the impacts may be different.

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