AN INQUIRY TO ASSESS THE IMPACT OF EXTRACURRICULAR ACTIVITIES ON THE PERSONAL AND PROFESSIONAL GROWTH OF COLLEGE-LEVEL ENGINEERS: A STUDY OF ENGINEERING STUDENTS AT PRIVATE COLLEGES IN CHINA

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ABSTRACT

The purpose of this study was to utilize the Postsecondary Student Engagement Survey (PosSES 2.1), which had been translated and culturally modified for usage in China, to investigate the key aspects of engineering college students' involvement in open access (OA) at one private university in China. The results of a poll asking 283 senior engineering students about their involvement in the project and their thoughts on its pros and cons are presented in this article. Participation at all levels may significantly impact favorable outcomes, according to the data. Engineering students' emotional engagement varies greatly due to significant disparities in the amount, kind, and intensity of active participation. In contrast to the quantity of negative consequences, students' emotional involvement was unaffected by the amount of OA they participated in. In addition, there was a robust relationship between emotional investment and beneficial results. Based on these results, engineering students, teachers, and policymakers should prioritize the quality of their OA interactions above their number. The research also provides descriptive data based on the factors that participants identified as encouraging or discouraging participation outside of class. Gains in knowledge and active participation from students are the primary foci of the current body of literature in China. Student engagement measures in engineering education heavily rely on emotional investment, and this research demonstrates that open access participation is a realistic strategy for engineering college students in China to advance.

Keywords: *China University, Engineering Student, Growth, Various Activities.*

1. INTRODUCTION

A combination of increasing enrollment and a stronger emphasis on the monetary value of a degree has put pressure on universities to improve students' employability. The rapid pace of change brought about by digitalization and globalization is something that educators must help their students prepare for. Another issue that is getting a lot of attention is how to make students more employable. The seeming growth of programs focused on enhancing students' employability is a

direct result of the fact that graduates' capacity to find work has a substantial impact on higher education policy and practice. The strategy's focus on employability, which include achieving short-term goals related to finding a job, enhancing professional preparedness, and promoting continuous learning, may influence the actions taken. Most people believe that extracurricular activities (ECA) help students become ready for the workforce, which in turn increases their chances of finding and keeping a job after college. Employers saw more value in graduates who were active in student groups offered by their universities. On the other hand, ECA offers students priceless chances to develop their marketable skills. No universally accepted definition of ECA existed until 2012. Additionally, there is absolutely no requirement for students to participate in ECA; it is entirely optional. The abundance of student organizations on college campuses makes it an ideal setting for students to try out new forms of social innovation and entrepreneurship. On rare instances, certain colleges do provide ECA opportunities, however these programs are usually deceitful since the participants aren't always forthright and committed. Because they pay so much attention to their instructor, the students seldom have a chance to help plan or oversee these activities. Promoting student enrollment in the foundation program is a primary objective of the ECA. The program's consistent focus on self-directed, holistic learning, together with its organized approach and active student engagement, lays a strong foundation for future success. The belief held by many students that their participation in extracurricular activities benefits them much is easy to understand. Colleges are one of the numerous aspects that affect the social status of graduates in the labor market. Many fresh grads have quite specific ideas about the kind of work they want to do. Students, professional groups, and schools are widely recognized as crucial components of social entrepreneurship education (Park et al., 2022).

2. BACKGROUND OF THE STUDY

Participation in extracurricular activities by college students is increasingly being recognized as an important factor in their future success in both their personal and professional lives. Examples of this may be seen most clearly in the academically rigorous areas like engineering. While doing well in school is obviously vital, studies reveal that kids' participation in extracurricular activities has a much more profound impact on their personal growth. Leadership, communication, collaboration, problem-solving, and time management are some of the "soft skills" that are essential to an engineering profession (Ma et al., 2022). Volunteering, internships, athletics, cultural events, and professional groups are just a few of the many extracurricular activities in which students participate. Participation in these events provides students with opportunities to put their classroom knowledge into practice, network with professors and experts in the field, and bolster their resumes. Even while these activities are obviously beneficial, very little research has examined their effects on engineering students' personal and professional growth, especially in the setting of private Chinese universities. As private universities in China continue to expand at a fast pace, it is crucial to comprehend the impact of extracurricular activities on students' intellectual and personal development. Students majoring in engineering at private institutions may have different obstacles than those at public universities, such as less financial support, fiercer competition, and a more crowded job market. Participation in extracurricular activities may provide students in this setting with opportunities to gain experience, build their resumes, and stand out to potential employers. The primary goal of this research is to examine the relationship between engineering students' involvement in extracurricular activities and their personal and professional growth at private Chinese institutions. Examining the most popular extracurricular activities, the

skills they impart, and the ways in which these activities impact students' personal growth and professional readiness, this research seeks to provide light on engineering students' educational experiences. This research has the potential to affect policy and student engagement initiatives at private Chinese universities by demonstrating the importance of extracurricular activities in engineering programs (Liu et al., 2023). There is a lack of study on engineering majors in private Chinese universities, despite the consensus that extracurricular activities may positively impact students' personal and professional growth. Because many private schools in China focus on younger pupils, there is a lack of information on how extracurricular activities affect students' long-term academic performance. It is critical that private institutions that aim to provide affordable, career-oriented education investigate the impact of extracurricular activities on students' overall development to enhance their academic programs and student support services. The most prestigious state institutions are out of reach financially for many Chinese students, so many attends private colleges instead. Engineering students at these schools may greatly benefit from participating in extracurricular activities by making new friends, gaining experience, and developing their personal growth. These qualities are very desirable in the current job market. An adaptive, communicative, and collaborative workforce is essential in today's world, especially in light of China's fast-paced technological innovation and the growing impact of globalization. Kids' mental and social well-being may improve when they take part in extracurricular activities; these activities often help kids feel more connected to others, reduce stress, and develop resilience. Students are motivated to challenge themselves intellectually via these activities, which aids in the development of marketable skills. Students learn to work together in a variety of teams via their volunteer work, internships, clubs, and organizations, which provide them practical experience.

Being able to understand and relate to other cultures is a skill that is highly prized in today's increasingly interconnected globe. Students may be able to cultivate these traits via exposure to a wide range of ideas and experiences (Dik et al., 2019).

3. PURPOSE OF THE RESEARCH

The primary objective of this study is to examine the relationship between engineering students' participation in extracurricular activities and their future careers and personal growth at private Chinese institutions. A distinct combination of hard and soft skills is necessary for success in engineering, as in any other profession. Finding out what makes a difference in students' ability to hone these abilities via extracurricular activities is the driving force behind this research. The purpose of this study is to investigate the effects of various forms of student involvement in extracurricular activities on their personal and professional growth. These activities may include athletics, clubs, internships, and professional organizations. Many components of individual growth, including leadership, collaboration, communication, time management, and problem-solving skills, will also be assessed in the study. The research will also look at the correlation between students' extracurricular activities and their future employability, career preparation, and overall work readiness. The primary objective in conducting this research is to identify the ways in which students may enhance their engineering education and stand out from their peers via their involvement in extracurricular activities. Because of the increased competition for jobs in today's global economy, it is essential to have a staff that is both varied and competent. Furthermore, by delving into an understudied topic—engineering students at private universities in China—this

study hopes to fill a gap in the current literature. The study aims to offer light on the special potential and hazards that engineering students meet, influence institutional policies, and help integrate extracurricular activities into engineering students' academic experiences. Emphasizing the value of extracurricular activities in promoting personal and professional development, this study aims to contribute to a well-rounded education for future engineers in China.

4. LITERATURE REVIEW

Few studies have specifically targeted engineering students, especially in the setting of private Chinese universities, but others have looked at how extracurriculars affect students' professional and academic growth generally. Focusing on critical areas including leadership development, skill growth, job preparedness, and the overall impact on students' academic and professional prospects, this literature review synthesises current research on the benefits of extracurricular activities on student development. The benefits of extracurricular activities on students' growth as individuals have been shown in a large body of research (Kim & Smith, 2021). Participation in these activities may help children develop important life skills such as leadership, interpersonal communication, and emotional intelligence. Students' confidence, self-esteem, and mental health are all favorably connected with how active they are in extracurricular activities. Though engineering students place a premium on academic success, they also recognize the importance of extracurricular activities in cultivating "soft skills," such the capacity to collaborate productively, overcome challenges, and manage stress. Students develop better time management skills as a result of their involvement in extracurricular activities, which require them to juggle several responsibilities. The children's social health is enhanced by these activities, which not only help them relax but also bring them

together as a community. These features may be especially helpful for Chinese private college students in the face of intense competition, as they provide emotional support and lessen feelings of loneliness. Internships, student-run engineering projects, and membership in professional engineering organizations are great ways for Chinese private college students to highlight their technical expertise on resumes (Ledyandini et al., 2020). When competing for jobs, students from private universities may not have the same professional networks or access to resources as their public university peers. Participation in extracurricular activities helps develop important life skills such as problem-solving, flexibility, and empathy for others who struggle in one's chosen career path. Private Chinese engineering schools offer its students leadership chances outside of the classroom, which can give them a leg up in the country's cutthroat employment market. Groups in the engineering field are always searching for new members with exceptional leadership and technical skills. Leadership roles in extracurricular activities, such as student organizations or community service projects, may offer students marketable skills to potential employers. Especially in the field of engineering, the current research highlights the importance of extracurricular activities in helping students grow as individuals and as future professionals. Leadership, collaboration, critical thinking, and interpersonal skills are highly prized by employers, and students who are involved in their extracurricular activities are more likely to cultivate these traits. Additional study is necessary to ascertain the precise effect on engineering students enrolled in private Chinese universities. In order to address this knowledge gap, this research will examine the ways in which these students' participation in extracurricular activities equips them for success in today's workplace by developing their personal and professional skills (Leung et al., 2022).

5. RESEARCH QUESTION

- What is the impact of Networking on the personal and professional growth of college-level engineers?

6. RESEARCH METHODOLOGY

Quantitative research refers to studies that examine numerical readings of variables using one or more statistical models. The social environment may be better understood via quantitative research. Quantitative approaches are often used by academics to study problems that impact particular individuals. Objective data presented in a graphical format is a byproduct of quantitative research. Numbers are crucial to quantitative research and must be collected and analyzed in a systematic way. Averages, predictions, correlations, and extrapolating findings to larger groups are all possible with their help.

6.1 Research design: In order to analyse quantitative data, SPSS version 25 was used. When analysing the statistical association, the odds ratio and 95% confidence interval were used to determine its direction and size. A statistically significant threshold was suggested by the researchers at $p < 0.05$. The primary features of the data were identified by a descriptive analysis. Mathematical, numerical, or statistical evaluations using quantitative methodologies are often used for data gathered from surveys, polls, and questionnaires, or by modifying existing statistical data using computing tools.

6.2 Sampling: Research participants filled out questionnaires to provide information for the research. Using the Rao-soft program, researchers determined that there were 1574 people in the

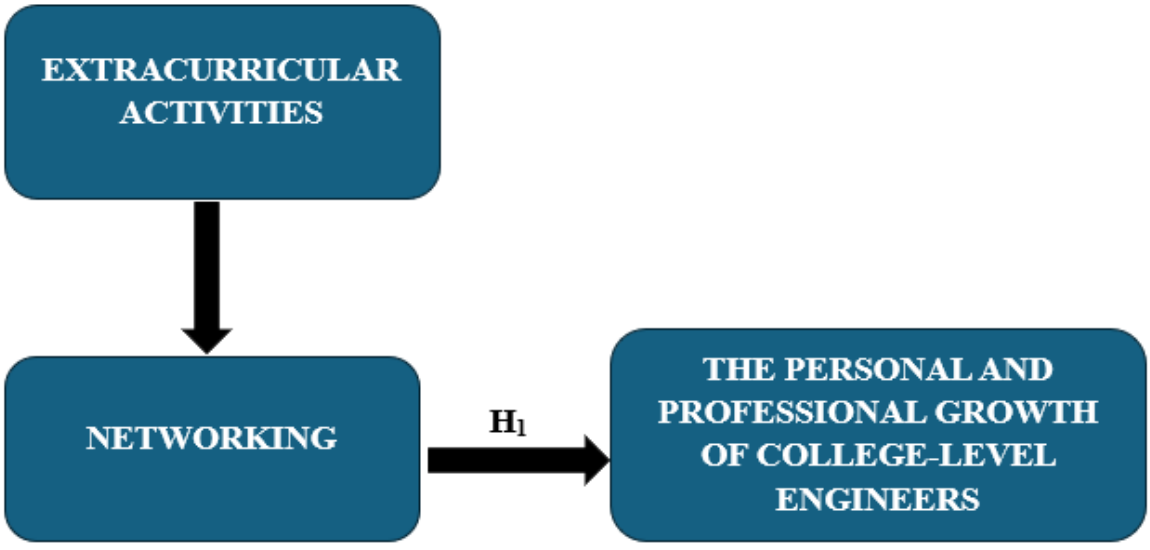
research population, so researchers sent out 1650 questionnaires. The researchers got 1628 back, and researcher excluded 16 due to incompleteness, so researchers ended up with a sample size of 1612.

6.3 Data and Measurement: A questionnaire survey functioned as the primary data collection instrument for the investigation. The survey had two sections: (A) General demographic information and (B) Responses on online and non-online channel factors on a 5-point Likert scale. Secondary data was obtained from many sources, mostly on internet databases.

6.4 Statistical software: The statistical analysis was conducted using SPSS 25 and MS-Excel.

6.5 Statistical Tools: To grasp the fundamental character of the data, descriptive analysis was used. The researcher is required to analyse the data using ANOVA.

7. CONCEPTUAL FRAMEWORK



8. RESULT

❖ Factor analysis

One typical use of Factor Analysis (FA) is to verify the existence of latent components in observable data. When there are not easily observable visual or diagnostic markers, it is common practice to utilize regression coefficients to produce ratings. In FA, models are essential for success. Finding mistakes, intrusions, and obvious connections are the aims of modelling. One way to assess datasets produced by multiple regression studies is with the use of the Kaiser-Meyer-Olkin (KMO) Test. They verify that the model and sample variables are representative. According to the numbers, there is data duplication. When the proportions are less, the data is easier to understand. For KMO, the output is a number between zero and one. If the KMO value is between 0.8 and 1, then the sample size should be enough. These are the permissible boundaries, according to Kaiser: The following are the acceptance criteria set by Kaiser:

A dismal 0.050 to 0.059, subpar 0.60 to 0.69

Middle grades often range from 0.70 to 0.79.

Exhibiting a quality point score between 0.80 and 0.89.

They are astonished by the range of 0.90 to 1.00.

Table 1: KMO and Bartlett's Test for Sampling Adequacy Kaiser-Meyer-Olkin measurement: .776

The outcomes of Bartlett's test of sphericity are as follows: Approximately chi-square degrees of freedom = 190 significance = 0.000

This confirms the legitimacy of claims made just for sampling purposes. Researchers used Bartlett's Test of Sphericity to ascertain the significance of the correlation matrices. A Kaiser-Meyer-Olkin value of 0.776 indicates that the sample is sufficient. The p-value is 0.00 according

to Bartlett's sphericity test. A positive outcome from Bartlett's sphericity test indicates that the correlation matrix is not an identity matrix.

Table: KMO and Bartlett's

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.776
Bartlett's Test of Sphericity	Approx. Chi-Square	3252.968
	df	190
	Sig.	.000

The overall importance of the correlation matrices was also validated by Bartlett's Test of Sphericity. The Kaiser-Meyer-Olkin sampling adequacy is 0.776. Utilizing Bartlett's sphericity test, researchers obtained a p-value of 0.00. A notable result from Bartlett's sphericity test indicated that the correlation matrix is not valid.

- **INDEPENDENT VARIABLE**
  - **Extracurricular Activities**

Students' involvement in pursuits unrelated to their academic work outside of the typical school day is known as extracurricular activities. Participation in these events will allow participants to meet new people, hone their existing abilities, and discover new areas of interest, all of which will contribute to their professional, social, and personal growth. Some examples include leadership programs, clubs, athletics, the arts, music, theater, debate, and volunteer work. Participation in extracurricular activities is an important part of a well-rounded education because it helps students

develop important life skills like creativity, collaboration, and time management (Kumar & Choudhury, 2021).

- **FACTOR**

- **Networking**

Networking entails establishing and sustaining relationships with the purpose of exchanging data, resources, or assistance. It entails connecting with people to build possibilities, exchange information, and work together, whether in a social or professional setting. Events, social media, or casual conversations are all potential venues for this. When discussing computer systems, "networking" is linking several pieces of hardware together to facilitate the sharing of information and resources. Networking is essential for facilitating communication, cooperation, and development in all spheres of life, from the personal to the professional to the technical (Xiuyun, 2020).

- **DEPENDENT VARIABLE**

- **The Personal and Professional Growth of College-Level Engineers**

The term "Personal and Professional Growth of College-Level Engineers" describes the all-around progress that engineering majors make while they study, from maturing as people to being fully prepared for the workforce. Improving one's communication, collaboration, leadership, flexibility, and critical thinking abilities are all part of personal development. Important for both individual achievement and teamwork, this entails developing qualities like self-awareness, emotional intelligence, and a solid work ethic. The three pillars of professional development—technical competence, industrial knowledge, and hands-on experience—are interdependent. To that end, it is essential to acquire a thorough understanding of engineering concepts, take part in relevant

internships research, and keep up with technical developments. Networking, career planning, and learning the ins and outs of the workplace are all part of professional development that may help you succeed once you enter the job. Engineers at the undergraduate level may achieve great success in their chosen disciplines and make significant societal and professional contributions via a combination of personal and professional development (Gupta, 2019).

- **Relationship between Networking and The Personal and Professional Growth of College-Level Engineers**

The link between College-Level Engineers' Networking and Their Professional and Personal Development When it comes to college-level engineers' career and personal development, networking is crucial. It gives students the chance to network with other students, teachers, and experts in the field, which helps them learn more and grow as individuals. Personally, I've found that networking has been very helpful in honing my communication, interpersonal, and collaborative abilities. Participation in student clubs, group projects, and events helps engineering students acquire important life skills including communicating clearly, working well with others, and adapting to new situations. Students may benefit professionally from networking in many ways, including introductions to mentors, internships, job openings, and insider knowledge of certain industries. Professionals and graduates may help students learn about career routes, keep up with trends, and overcome technical and professional obstacles by communicating with them. Collaboration on creative initiatives and research is another benefit of networking that is critical for engineers looking to advance in their careers and succeed in the field's cutthroat environment. In conclusion, college-level engineers may accomplish much in their professional and personal lives

by networking, which helps them make connections, learn new things, and set themselves up for success in the long run (Kim & Kim, 2022).

Based on the above discussion, the researcher formulated the following hypothesis, which was to analyse the relationship between Networking and The Personal and Professional Growth of College-Level Engineers .

H_{01}: "There is no significant relationship between Networking and The Personal and Professional Growth of College-Level Engineers"

H_1: "There is a significant relationship between Networking and The Personal and Professional Growth of College-Level Engineers"

Table 2: H_1 ANOVA Test

ANOVA					
Sum					
	Sum of Squares	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	39588.620	701	5655.517	487.693	.000
Within Groups	492.770	910	5.356		
Total	40081.390	1611			

The outcome of this research is noteworthy. A p-value of.000 (below the alpha threshold) indicates that the value of F, which is 487.693, is statistically significant. This means the ***"There is a significant relationship between Networking and The Personal and Professional Growth of College-Level Engineers"*** is accepted and the null hypothesis is rejected.

9. CONCLUSION

Such involvement may have far-reaching implications, according to research that examined the impact of extracurricular activities on the personal and professional development of engineering

students attending private Chinese institutions. Evidence suggests that these kinds of events greatly improve students' technical ability, self-confidence, and involvement in extracurricular activities. Leadership, problem-solving, critical-thinking, and practical experience are just a few of the transferable skills that engineering students may acquire via involvement in clubs, groups, and events. Participating in these events may help students develop the interpersonal skills that are so important in collaborative engineering settings, such as the ability to work together effectively and communicate clearly. Participation in extracurricular activities provides children with opportunities to develop important life skills that are essential for academic and vocational success, such as self-awareness, time management, and resilience. The report does, however, point out a number of institutional and cultural obstacles that are unique to China's private sector. The ubiquitous academic pressure on students and the relatively low attention given to extracurricular activities in university courses are two examples of this. To fully experience the advantages of extracurricular exercise, it is necessary to tackle these hurdles via awareness campaigns, individualized programming, and institutional assistance. As a vital supplement to academic studies, extracurricular activities enable engineering students to become well-rounded individuals and connect classroom theory with practical experience. Educational institutions should make it a top priority to foster an atmosphere that promotes and assists students in engaging in various extracurricular activities if they want to make the most of this potential.

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