

# Enhancing University Students' Soft Skills: A Quantitative Study on Problem-solving and Social Competence

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## Abstract

*This study investigates the development and interrelation of problem-solving skills and social competence among university students using the quantitative methodological approach. It addresses massive gaps in our knowledge regarding soft skill manifestation and evolution in higher education. Data was collected from 300 university students using validated survey instruments about problem-solving ability, social competence, academic performance, and other related variables through systematic sampling. There were a few significant positive correlations between problem-solving confidence, social competence, and academic performance. Multiple regression analysis demonstrated that problem-solving confidence and problem-solving skills are the principal predictors of academic outcome accounting for 25% of soft skill variance. Furthermore, the investigation indicates large substantive correlations between stress-coping mechanisms and social competence. This predicts that emotional resilience is influential in academic environments. This research analyzes the socioeconomic aspect of skill acquisition. Therefore, it underlines the need for specific education interventions. This contribution of the research to the theoretical discourse on the development of soft skills in higher education is further augmented by providing evidence-based recommendations for curriculum upgrading and institution policy reforms. The results of the study hold enormous implications for pedagogy practices and the development of education policy within higher education institutions.*

**Keywords:** *Social Competence; Academic Performance, Soft Skills, Higher Education.*

## Introduction

Soft skills, problem-solving, and social competence are necessary and significant abilities of students to effectively explore complex challenges. These skills include some of the important abilities developed to enable individuals to solve complicated challenges and communicate with others in various situations (Cimatti, 2016). These skills are crucial in higher education as they play an important role in the academic and professional performance of a student to face the challenges of the job market globally. Employers have significantly been focusing on developing soft skills and technological advancements of employees (Schislyaeva & Saychenko, 2022). The ability to transform and solve problems creatively enables interaction with social competence to manifest as a key determinant of professional success (Zdanevych et al., 2020). However, despite these important skills, limited opportunities are available at universities for proper development of the skills which contributes to a lack of adequate preparedness for the academic or professional world (Tran, 2013). Addressing these gaps is vital to ensure graduates with equipment for the preparation of a highly competitive and dynamic world.

Soft skills are increasingly valued in the labour market. However, a large number of university students possess fairly low levels of key problem-solving and social competence skills (Ghani et al., 2018). The primary reason behind this skill shortage among university students is the practice of a traditional educational approach that focuses on the transfer of technical knowledge rather than an integrated development process for competencies (Doorn & Van Doorn, 2014). Therefore, students are poorly prepared to cope with complex challenges or to act effectively in professional life and society. The lack of such basic abilities contributes to a disadvantage in functioning at school and future employability. Thus, leading to graduates being poorly equipped to confront the increasingly complicated requirements of a competitive global marketplace.

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The research explores the current state of problem-solving and social competence among university students. This aims to identify the factors that influence or hinder the development of these important skills. The examination of these aspects investigates the effectiveness of the universities in enhancing the student's problem-solving and social competence skills through curricular and extracurricular interventions. The goal of the study focuses on uncovering the existing gaps in soft skill development and proposes evidence-based strategies for the improvement of competencies concerning the academic environment. Therefore, better preparations of the students for academic success and future professional challenges can be achieved.

### *Research Questions*

- What is the recent condition of problem-solving and social competence among university students?
- What are the influencing factors towards the development of problem-solving and social competence skills among university students?
- How effective are the curricular and extra-curricular activities of the university interventions to enhance problem-solving and social competence skills?
- What are some of the existing gaps in soft-skill development?
- What evidence-based strategies can be proposed for the improvement of these competencies in academic settings?

The present study is significant in providing useful insights into educators, policy framers, and employers that highlight the importance of problem-solving and social competence among university students critically. The research provides educators with a basis for building more efficient curricula by incorporating soft skill development into the learning process of a student. Furthermore, the research helps with the equipment to deal with the demands of both academic and professional life effectively. The research enables the policymakers to use the findings for underpinning the strategies to promote holistic education and supplement the gaps in current educational frameworks. Similarly, employers benefit from a more complete understanding of the required skill sets within graduates, enabling them to focus their approach to recruitment and training with greater clarity (Succi & Canovi, 2019). The research contributes to the wider debate on educational reform by reinforcing the need to balance technical knowledge with key life competencies. In training these competencies, the research aims to enhance long-term success and adaptability within an increasingly dynamic global economy for university graduates.

### **Literature Review**

Problem-solving skills can be defined as the capability of a person to identify, analyze, and find a reasonable solution to any complicated situation effectively and efficiently. In higher education, these are crucial to the needs of the students in addressing academic challenges while developing critical thinking and applying knowledge in real situations (Persky et al., 2018). It directly impacts students' academic performances and future professional opportunities because most employers seek university graduates capable of critical thinking and creative problem-solving. Several studies explored the development of problem-solving skills within higher education students. Research has indicated that students may often possess a basic level of competence in problem-solving (Gyenes, 2019). However, meaningful development of this ability is hindered by de-emphasis on critical thinking within the curriculum, lack of opportunity, and traditional assessment procedures focusing on rote memorization (Grove & Bretz, 2012). The velocity in the rate of technological change and the immense complexity of most contemporary problems are challenging for students and instructors to develop profound problem-solving skills.

A combination of problem-solving skills, instructional methods, and assessment techniques enhances the assessment of learners. Curricula incorporating problem-based learning, case studies, and project work conducted in a group environment have been observed to facilitate improvement in problem-solving capabilities among participants (Goodnough, 2006). Furthermore, active learning, critical thinking, and reflective practice make a provision for enhancement in the instructional methods (Azer, 2001). Additionally, assessment methodologies that include open-ended questions and scenarios with real problems, and formative feedback, allow the students with the necessary tools and material to refine and improve their problem-solving abilities.

Social competence or interpersonal skills refers to the capability of a person to address effective interaction including problem-solving, resolving issues managing conflicts, and operating in teams. Tabassum et al. (2017) recognise that social competency and effective problem-solving are closely applied in university education because working in a group and having collaborative discussions require social competency and problem-solving skills that might develop the professional background of a student. This contributes to building better academic performance and an effective employability perspective among the students. Furthermore, it helps the students to focus on participation in groups, communicating constructively with peers, and negotiating different factors and challenges (Borge & White, 2016). Emphasizing group assignments and leadership tasks results in carrying out co-curricular activities that can develop these skills more profoundly to the development of modern world challenges (Cojocar, 2023). Therefore, appropriate social competence together with problem-solving skills are relevant for success within school and work settings.

The development of soft skills such as problem-solving, and social competence poses few challenges for universities. The most widespread problem is the lack of resources for developing these skills. Many institutions are focused on teaching technical and academic knowledge, leaving the development of soft skills underfunded and understaffed (Robles, 2012). This can reduce opportunities for involvement among the students in practising and promoting the acquisition of these competencies, including workshops, seminars, and practical exercises.

Another major concern is the inefficient and insufficient training of educators. Lack of preparedness in education may subsequently mean that lesser focus on problem-solving and social competence in the classroom, where traditional teaching methods are more concerned with content delivery than with skill development ((McClelland et al., 2000; Denham, 2006). Hence, graduate students with good technical knowledge may lack several soft skills that the employer is demanding.

Socioeconomic and cultural issues enter into soft skill development due to the general influential access to resources, opportunities, and support systems. Additionally, students from lower socioeconomic groups are least exposed to developing activities such as leadership experiences, internships, or extracurricular programs (Nghia, 2019). These can also be influenced by cultural differences in problem-solving and social interactions.

Lack of problem-solving skills and social competence skills in university students can be subjected to various factors. One of the major causes is continued excess to conventional forms of education that discourage creativity and innovation in teaching and prioritize methods such as rote memorization and examination (Ghaleb, 2024). These time-tested methods prove to be unproductive regarding the acquisition of soft competencies and in developing problem-solving skills in real-life situations (Brata & Mahatmaharti, 2020). Moreover, the deficiency of the number of actual assignments in study curriculums worsens because students may find it inefficient to practice experiential learning approaches.

Inefficient support facilities inside universities play an aggravating role. Few institutions lack structured programs to develop soft skills and many students requiring help in honing problem-solving and social skills are left with challenges (Almeida & Morais, 2021). Furthermore, especially considering the continued complexity of issues encountered by learners in academics and careers is particularly concerning.

Digital distraction with growth in technology interferes with the process of having the right soft skills in students. Smartphones and social media cause lesser attentiveness and fewer engagements and interactions resulting in less time for in-depth learning (Rozgonjuk et al., 2018). The co-existing mental health disorders including anxiety and depression build a challenging issue for the students to engage in developmentally appropriate activities that foster problem-solving and social competence (Liu et al., 2022). Lack of adequate and appropriate social contacts and interactions slows the learning of these skills resulting in social isolation and less participation in peer activities.

The incorporation and implementation of several practices can be followed to enhance the capability of soft skills such as problem-solving and social competence. Several universities have applied various measures to build up soft skills that are necessary for the students for possession and development (Rao, 2024). Several studies highlight the effectiveness of inter-professional education where students from different faculties work in groups that help in the promotion of problem-solving and teamwork (Tem et al., 2020). Programs integrating engineering and business students are grouped to work together on projects to record greater enhancements in problem-solving and social relations.

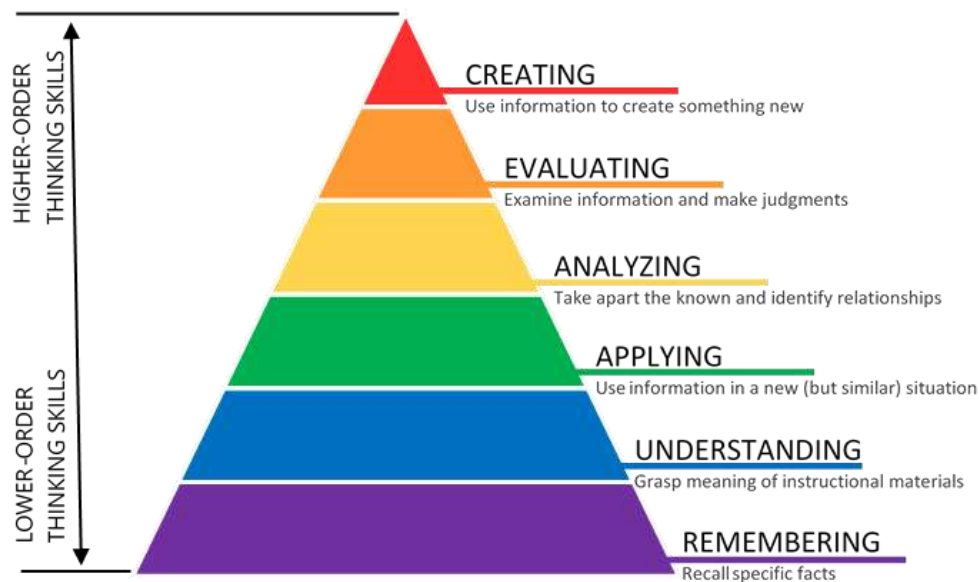
Group activities such as group assignments, peer teaching, and training are also very effective in terms of the development of skills. These activities help the students to be exposed to different points of view, learn to compromise, and possess social skills due to the group assignment (Goldschmid & Goldschmid, 1976). Furthermore, group interactions through computer-simulated scenarios and collaborative platforms provide other interesting opportunities to develop such competencies. These tools are flexible and interactive providing a setting for experimentation with problem-solving strategies and receiving immediate feedback. This results in the enhancement of the learning processes and experiences to prepare for the complexities of the modern workplace.

Despite the growth of recognition of the importance of soft skills including social competence and problem-solving, a significant gap in the research remains. This gap lies in understanding the university framework for the effective fostering of these abilities among students. The existing research focuses on the technical knowledge accompanied by limited attention to the interpretation of soft skills in academic and extracurricular activities. Furthermore, recent studies often overlook the influence of challenges and conflicts such as digital distractions and socioeconomic disparities on the development of these skills. This study seeks to address these gaps through a deep investigation of the significant barriers to soft skill development by following a framework for evidence-based strategies to enhance problem-solving and social competence in university students.

### *Theoretical Framework*

The theoretical framework for this study focuses on drawing out the key theories relating to the development of soft skills, particularly focusing on problem-solving and social competence. Soft skills are often conceptually framed in the context of educational psychology (Saman & Wirawan, 2023). The foundation of such theory underlines cognitive and emotive processes forming the basis of skill acquisition. One foundational theory is Bloom's Taxonomy, which categorizes cognitive skills into hierarchical levels- from basic knowledge acquisition to complex problem-solving (Krathwohl, 2002). According to this theory, a conceptual framework can be set out in the course of systematic development of problem-solving skills with specific educational interventions (Figure 1).

Social competence shares most of the relations with social learning theory. A significant proposition of the theory has been stated by Albert Bandura. According to Bandura, people learn certain social behaviours through observation, imitation, and modelling of others during social situations (Bandura, 1977). Therefore, this theory focuses on peer interaction, role models, and collaborative learning environments as major enhancers of social competence in university students.



**Figure 1** The layers of cognitive skills as proposed in Bloom's Taxonomy (University of Florida, n.d.)

Educational psychology also provides insight into the role of motivation, self-regulation, and feedback in developing problem-solving and social competence. Moreover, by integrating these theoretical perspectives, the study undertakes an inquiry into the development of soft skills within university settings and the enhancement of appropriate curricular and extra-curricular activities (Prada Creo et al., 2020). This combination of cognitive and social theories ensures a comprehensive framework from which to analyse the complex processes involved in developing this class of competencies.

## Methodology

This research used a quantitative research approach in analysing university students' problem-solving and social competence skills. The nature of the research requires a quantitative approach as it involved the use of numbers to retrieve data that had been analysed statistically for the determination of the development of soft skills. Uniformity of the procedures was maintained by the use of a survey as a justifiable and standardized method for assessing students' self-reported levels of problem-solving and social competence. Questionnaires were especially appropriate for the measurement of such soft skills as perceptions, attitudes, and behaviours due to the dependency on surveys. Besides, surveys helped to gather data through categorization resulting in the identification of the factors causing differences in skill development and possible points of intervention.

The target population of this study had been focused on university students from several universities. This population involved undergraduate and postgraduate students from all fields because the study sought to establish an overview of problem-solving and social competence skills across disciplines.

To conduct the study, a random sampling technique was used in a bid to have a cross-sectional of the students. This approach reduces selection bias and increases the external validity of the study results. The sample size was 300 student respondents calculated using the statistical analysis to compute enough valid cases. These questions, therefore, were subject to the application of an adequately sized sample that was randomly selected. This made meaningful comparisons for a broad assessment of the identified soft skills to support assessments aimed at enhancing education practices and policies.

The data collection procedure that was used in this study is the Questionnaire Survey formulated to measure university students' problem-solving and social abilities. The survey was developed from several other validated research to be applied in the study. Questions referring to confidence and problem-solving skills were derived from a self-assessment questionnaire developed by Pui et al. (2015). Furthermore, questions referring to the frequency of reflection on strengths and weaknesses were derived from a sample questionnaire Chamorro-Premuzic and Furnham (2006). Likewise, the stress-coping and perseverance scale was borrowed from Hill & Jackson (2016). These parameters were chosen to consider the phenomenon in all aspects and see how students' soft skills are being developed in different settings. Likert scale questions were used with a scale ranging from 1 (strongly disagree) to 5 (strongly agree) with multiple choice questions helping in the evaluation of some specific decisions. Additionally, the survey employed tools that have previously been validated in other works, thus, making the results of the survey reliable and valid. Besides, a pilot test was used to make minor adjustments to the questions to maximize the comprehensibility before the actual survey. Therefore, the enhancement, reliability, and relevance of the instrument strengthened the functionality of the accuracy and applicability to the objectives of the research.

To reduce measurement error and increase the validity and reliability of the survey tool, the instrument was developed from other surveys used in other similar studies on soft skills development in higher education. It has been noted that Likert scales and multiple-choice questions are viable methods of generating accurate data about students' competencies (Bottomley & Denny, 2011). Moreover, since the survey was newly developed, the pilot test was done before administering it to a full population of students to ensure that the questions formulated were understandable and did not possess operational incongruity.

The survey was conducted online for easier and broader collection of data within a short period. Users were contacted through randomly selected university students' email lists and follow-up email messages were forwarded to them to increase response rates. The collection of data involved the use of a web-based tool that enabled ease of data collection and accuracy of data collected. The ethical factors included securing consent from all the participants wherein they were to explicate the objective of the study and would be able to withdraw at any time they consider appropriate (Bryman, 2016). Participants' data were anonymised to ensure their confidentiality since some questions may have been sensitive and to minimize the risks of exposure of data in storage.

The data analysis for the study involved statistical techniques to determine the overall problem-solving and social competence skills of the students, frequency counts, and descriptive measures such as means, median, and standard deviation. This afforded a synthesis of the mean, mode, and range, and the dispersion of data within the cases.

To identify correlations between various factors and analyse the possibility of indicating key factors influencing soft skills development, regression methodology was used. This method enabled looking at the variables such as demographic status, academic profile, and co-curricular activities that affect problem-solving and social skills. These statistical techniques were used for this study to focus on the evaluation of skills and analysis of factors that contribute to it (Cooksey, 2020). Descriptive statistics gave the first impression of the data while regression analysis helped in providing detailed information on the factors that influenced skill development, and the awareness of it, and aided in making the right recommendations for education interventions.

Possible limitations of this work included the issue of sample size whereby the results obtained might have been representative enough. Self-serving bias could be obtained if participants gave respondents' perceptions rather than actual self-rating. Furthermore, the generalization of findings might have been constrained to the given institutions and geographical settings. To avoid these shortcomings, efforts were made to ensure the sample was diverse and sufficiently large for random sampling and proper recruitment. To reduce the response bias, all the responses were anonymous and the questions framed in the questionnaire were non-leading. Studying results were discussed concerning the research context, and important aspects were considered while making suggestions on generalising the findings.

## Results of Data Analysis

### *Descriptive Statistics*

The descriptive statistics provide key insights into student behaviour and academic performance. The research findings revealed that students, on average, have confidence in their self-efficacy; however, there is scope for improvement through boosting confidence, ensuring consistency in feedback, and stress management. Intervention areas include mentoring programs, standardised systems of feedback, and workshops for building resilience to further improve student outcomes and academic satisfaction. Besides that, helping the students by offering them the support that can be provided and considering the demands of each student will help in forming a just and nurturing learning environment. The provided descriptive statistics bring to light insight into various dimensions of student behaviour, problem-solving ability, and academic performance. The statistics break down the key variables that include confidence in problem-solving, actual problem-solving ability, self-reflection, feedback, stress management, academic satisfaction, and overall academic performance. Each variable is analysed using its mean, standard deviation, and range to understand deeper tendencies and areas that require improvement.

**Table 1. Table showing the descriptive statistics of the study**

Variable	Mean	Standard Deviation	Min	Max
Confidence When Interacting with a Problem	2.54	0.73	1	4
Problem-solving skills	2.73	0.67	1	4
Reflect on Strengths and Weaknesses	2.57	0.85	0	4
Feedback Retrieved for Assignments and Exams	2.34	0.86	0	4
Stress-Coping and Resilience	2.63	0.72	1	4
Satisfaction with Academic Achievements	1.40	0.57	0	2
General Academic Performance	2.50	0.77	0	4

### *Confidence When Interacting with a Problem*

The average score of 2.54 on a scale from 0 to 4 indicates that the students, on average, feel a little above average in their ability to deal with problems. On the other hand, the standard deviation of 0.73 indicates variability among students, implying some students lack self-assurance while others are confident. This may call for interventions at this point to bolster the confidence of students in solving problems, perhaps through structured practice, mentoring, or workshops that establish self-efficacy.

#### *Problem-solving skills*

Rating their ability to solve problems on an average of 2.73, students consider themselves to be moderately high in this area, which aligns with their perceived levels of confidence. The lower standard deviation of 0.67 indicates that there is more uniformity among students' perceptions of their ability to solve problems, suggesting that most of them are competent, if not entirely confident, about the skills in their application across different situations. This is where the difference between real and perceived skills can be bridged if problem-solving scenarios involving real-life situations could be taught at academic institutions to enhance both competency and self-confidence.

#### *Reflect on Strengths and Weaknesses*

Scores on students' reflection regarding their strengths and weaknesses in difficult situations mean a 2.57, indicating that they "sometimes" to "often" do self-assessment. However, the larger standard deviation of 0.85 shows that there is a big gap, as some students reflect often and others hardly ever do so. This gap hints at an area that could be slightly structured in terms of self-reflection exercises. Facilitating consistent reflection may lead to better problem-solving strategies and, hence, improved academic performance.

#### *Feedback Retrieved for Assignments and Exams*

Feedback is a very important tool for academic development; however, the mean rating of 2.34 provided for feedback received denotes that feedback is offered "sometimes" to "quite often." The standard deviation of 0.86 indicates more variability, but some students received consistent feedback, while others received little or no feedback. The disparity here appears to point out that it's not even proving that there is unequal distribution, and this would impede the capacity to solve problems and consequently the total student satisfaction. Universities could ensure that there are more favourable outcomes for their students if they have a standardised feedback mechanism in place across courses so that each student gets appropriate constructive feedback.

#### *Stress-Coping and Resilience*

The average rating for stress-coping ability is 2.63; therefore, students feel "good" about their capacity to cope with stress. A reasonably low standard deviation of 0.72 means that most students are fairly confident in their ability to bounce back from difficulties; however, some are still experiencing stress management problems. Since building resilience in the management of stress is important for succeeding in higher education, universities could also include workshops and provide learning materials on developing student resilience as well as support such students may need to be able to manage stress effectively.

#### *Satisfaction with Academic Achievements*

Students are moderately satisfied with their achievement by academic standards. The mean score was obtained as 1.40 on a scale of 0 to 2. A range of satisfaction scores is available that tells that though some were highly satisfied, others reported very low satisfaction. This can be interpreted that while a lot of students think that they are meeting their expectations concerning the academic programs, there is quite a bit of improvement. Another area where its support services could be given considerable importance is in tutoring and recognition of achievements that improve the level of student satisfaction.

#### *General Academic Performance*



The mean score on the overall academic performance is 2.50, which means the performance is "moderate." A standard deviation of 0.77 represents a significant variation in academic outcomes, meaning that academic performance for an individual is influenced by a variety of factors, including background, study habits, and institutional support. Targeted academic interventions that consider the diverse needs of students could be designed to bridge the performance gap. Support would then be extended to students at all levels.

### *Inferential Statistics*

The correlation analysis of the dataset provides insights into the relationships amongst soft skills, academic performance, and the main influencing factors-families, universities, and peer influence. This knowledge about how these things interrelate with one another assists in understanding how students can increase their chances of success.

### *Correlation analysis*

**Academic Performance and Problem-Solving:** The correlation matrix indicates that academic performance has a moderate positive relationship with confidence in dealing with problems (correlation: 0.26). This suggests that the students who are performing well in academics are more confident regarding the solving of problems. Moreover, problem-solving skills are positively correlated with academic performance (correlation: 0.23). Therefore, it is presumed that the ability to problem-solve enhances overall academic performance. These findings show that problem-solving confidence may lead to improvements in academic performance.

**Feedback and Satisfaction:** Presumably, the most important aspect of academic development is probably feedback. A positive correlation is found for this variable concerning academic performance (0.23) and satisfaction with accomplishments concerning academics (0.35). That is, students who will receive consistent feedback on their assignments and exams are likely to get good marks and be satisfied with the progress they make. This, therefore, indicates the importance of timely and appropriate feedback to establish not only academic performance but also student satisfaction.

**Soft Skills and Academic Performance:** Positive correlations exist between soft skills like critical thinking and teamwork and academic performance. Such a correlation calls for the importance of soft skills in academic success. It represents an important step toward academic competence in the preparation of students' outcomes since these skills promote personal and academic performance.

**Social Competence and Academic Success:** There is a positive correlation between problem-solving ability and academic performance. The relationships there are  $r = 0.29$  for problem-solving and  $r = 0.17$  for academic performance. It shows that students with a high level of social skills can solve problems with ease and have good academic success. There tends to be a strong reason for such a relationship to exist because of the importance of social interaction and teamwork in the academic environment.

**Table 2. Table showing the correlation matrix between the data variables**

Variable	Academic performance	Confidence	Problem-solving skills	Feedback
Academic performance	1.00	0.26	0.23	0.23
Confidence	0.26	1.00	0.46	0.15
Problem-solving skills	0.23	0.46	1.00	0.20
Feedback	0.23	0.15	0.20	1.00

*Regression Analysis*

From the regression analysis, it has been identified that such key predictors of outcomes of problem-solving and social competence relate to the following factors. Confidence with problems surfaced as the best predictor, with a positive coefficient of 0.29, indicating that a higher level of confidence significantly enhanced the problem-solving outcomes. It was also found that problem-solving skills contributed positively at a coefficient of 0.23, further confirming the importance of such skills in this problem. This reflective ability in personal strengths and weaknesses, then, has a moderate positive influence on problem-solving with a coefficient of 0.12. Receiving feedback was of a smaller magnitude than this, but stress-coping ability positively affects problem-solving, with a coefficient of 0.15, thereby showing the necessity of emotional resilience to face problems. A very low positive coefficient has group work competence with 0.04, indicating that its direct effects on the problem-solving outcome are rather insignificant. Motivation to participate in university events is meaningful, with a coefficient of 0.16, which shows that the engagement of students enhances better problem-solving and social competence. Furthermore, as the R-squared value for this model is 0.25, it indicates that 25% of the variation in problem-solving and social competence can be explained by these predictors, thus indicating the importance of confidence, problem-solving skills, and motivation towards the outcome.

**Table 3. Table showing the regression analysis summary of the variables**

Predictor	Coefficient	Significance
Confidence while dealing with problems	0.29	High
Problem-solving skills	0.23	Moderate
Reflection on strengths/weaknesses	0.12	Low
Feedback received for assignments	0.07	Low
Soft Skills Affecting Academic Performance	0.18	Moderate
Social competence in group projects	0.04	Low
Stress-coping ability	0.15	Moderate
Satisfaction with academic achievements	0.06	Low
Motivation to participate in university	0.16	Moderate

## Discussions

### *Placing the Findings in the Context of Other Research Currently*

The findings from this research align with most of the existing literature that emphasises the role of soft skills in the accomplishment of academia, especially problem-solving and social competence skills. It has been reported in research studies that success is guaranteed among these students both in academic and non-academic settings due to the manifestation of strong problem-solving skills and competencies in the social aspects (Liu et al., 2023). Our results agree with these conclusions since regression revealed both academic performance and social competence positively correlate with confidence in problem-solving.

### *Problem Solving and Self-Efficacy*

The fact that the coefficient of 0.29 is strongly positive concerning self-efficacy in problem-solving and performance proves the argument that has been set up by many previous studies. According to Doménech-Betoret et al. (2017), self-efficacy is part of students achieving high academic success. This theory of self-efficacy postulates that beliefs in one's capabilities considerably affect the capability to successfully carry out tasks and solve problems. Our work contributes further to this argument by demonstrating not only that it is indeed self-confidence that improves problem-solving capabilities but also social competence. The dual impact of confidence suggests that efforts toward the building of this construct in students may have important long-term payoffs, not limited merely to academic achievement. However, the existing literature often identifies softer skills like teamwork and communication as major contributors to academic success (Carter et al., 2015). Our research reveals a slight moderate coefficient (0.18) between soft skills and academic performance. This indicates that soft skills are important that students can perceive regarding their soft skill competency. This does not always carry forward to better educational outcomes. This gap is because of the significant emphasis on hard, traditional marks of academic achievement, such as grades, that may not reflect on the effect that soft skills would be able to deliver in practice.

### *Social Competence and Stress-Coping*

The third and last salient relationship found is that between stress-coping capacity and social competence (coefficient: 0.15). This is in keeping with other studies that stress the function of emotional regulation in fostering interpersonal relations (Domitrovich et al., 2017). It is, therefore, important that students entering complex social environments - especially when doing group-based academic work - will learn to handle stress properly. This aligns with the theory of Chandra (2020), which focuses on emotional intelligence and posits that concerning academic stressors as well as social interactions, more "emotionally intelligent" students are much better equipped to handle these pressures. On the other hand, the positive but weak relationship between social competence in group projects and academic performance stands at a coefficient of 0.04, which speaks to an increasing number of studies, which claim that while social competence is needed to collaborate, it often has no direct correlation with better academic performance (Jones et al., 2017). A group project will involve different interpersonal dynamics, and students having considerable social competence may not always find academic acknowledgment for their contribution.

### *Implications for Educational Practices and Policy*

The findings of this research have several implications for practice and policy in higher education. As soft skills are increasingly recognised as critical factors for student success in the workplace, there is a need for institutions of education to reassess their curricula to focus more on problem-solving ability and social competence.

### *Curriculum Adjustments*

A positive correlation between problem-solving confidence and academic performance argues that curricula should contain more opportunities for students to practice solving problems. The PBL approaches allow the student to work through intricate, real-world problems in a collaborative environment where not only are problem-solving skills honed but also the necessary confidence to face later challenges. This method has been proven to increase both hard and soft skills. Our results support the need to use this method in an academic setting to improve various other skills. At the policy level, higher education institutions should look forward to integrating assessment for soft skills into their general frameworks of academic assessment. Academic performance has largely been measured through examinations and assignments in higher education institutions. Exams and assignments do not capture the subtleties of skills such as problem-solving and social competence. Universities may introduce formative assessments that focus on the development of soft skills among the students. The feedback will cover information not only on the academic content but also on interpersonal interactions, teamwork, and conflict resolution in group projects.

### *Socioeconomic Disparities*

The socioeconomic gradient in problem-solving skills realised in the study is significant to educational policy. Students with backgrounds of disadvantageous socioeconomic origins realised lower skills in problem-solving as compared to others. The reasons may include reduced access to educational resources and, by extension, other relevant support systems. This gap requires the implementation of targeted interventions meant to level the playing field for all students because, by background, there are no students. For example, more resources would be offered by universities, such as free tutoring, mentorship, and workshops in self-confidence and problem-solving for students coming from disadvantaged backgrounds. Stress-management programs should also be more convenient given that the critical relationship between stress-coping capabilities and social competence does indeed provide more convenience for the available resources about mental health and stress reduction workshops to the students. In this regard, it can be seen that such an environment may help create a more friendly learning atmosphere where an appeal is not only to emotional well-being but also to social achievement. The imperative to accord emphasis on the mental health service provision in colleges can very effectively influence not just the students' social competence but also their functioning in the environment of the school.

### *Strategic Interventions in Developing Soft Skills*

The study yielded major findings that suggest universities and educators adopt a combination of several evidence-based approaches to enhance the problem-solving and social competence of students.

### *Problem-Solving Strategies*

***Problem-Based Learning and Case Study:*** In the words mentioned above, problem-based learning is one of the best approaches to developing problem-solving abilities. PBL pushes the student's mind to critical thinking, solvers' level, by providing students with real-life problems on which they have to reflect and think seriously. A case study provides a great opportunity for learners to develop cognitive skills as well as soft skills, while PBL encourages active learning and building of confidence by repeatedly providing them with structured opportunities to solve problems.

***Reflection and Feedback:*** Such an implication of the discovery that reflective consideration of strengths and weaknesses, respectively, has a positive influence on problem-solving skills will be that such activities may be promoted in university students so that they can have effective problem-solving skills. This may be done through reflective assignments made part of any curriculum, for example, after completion of a project or examination where results need to be commented upon by the student. Combined with effective feedback from instructors, this reflective process will allow students to identify areas of need and become confident in their capability for improvement and performance.

***Workshops on confidence building:*** Given that confidence is a pivotal aspect likely to determine the outcome of problem-solving, universities should institute confidence-building workshops or seminars targeting students' confidence building. Such may cover developing a growth mindset for students-ensuring that their abilities can be improved with effort and practice. This may have a ripple effect with implications extending far beyond problem-solving skills into social competence.

### *Social Competence Interventions*

***Collaborative Learning Environments and Team-Based Projects:*** Collaborative learning environments facilitate students' growth in social competence. Working in groups allows students to develop skills such as effective communication, resolution of conflicts, and coping with group dynamics. The inclusion of team-based learning within the curriculum that measures both individual and group performance can foster social competence along with gaining academic content knowledge.

**Peer mentoring and lifelong learning programs:** Students who have solidly developed social competence and problem-solving skills can be good role models for peer mentoring programs. Less experienced students can benefit from working through different academic and social hardships through peer mentoring and become more competent at teamwork and problem approaches with increased confidence.

**Extracurricular Involvement:** The positive relation between motivation to participate in university events and social competence suggests that universities must actively encourage participation among their students in extracurricular activities, be it clubs, sports teams, or student organizations. It is in these extracurricular activities that students receive essential practical experience in dealing with real-life situations. Thus, involvement can be the key to better social networks for the student and the development of interpersonal skills.

## Managing Mental Health and Stress

Finally, the strong correlation between stress-coping ability and social competence calls for mental health education as one of the key components of university life. University life must also be streamlined to include programs that teach students how to cope with stress, especially in group work or when handling long academic tasks. Colleges may also engage their students in workshops on mindfulness, resilience training, and emotional intelligence. These would all help the student psych up to handle tasks as well as assemble social environments responsibly.

## Conclusion and Recommendations

### *Synthesis of Research Outcomes*

The study has shed more light on the problem-solving ability and social competence of university students, with significant predictors and implications for academic performance and wider student development. The study found, for example, that confidence in problem-solving was a strong positive predictor of both academic success and social competence. This further confirms that the academic success developed is in students who have confidence in problem-solving and are more capable of relating appropriately in any social setting. Moreover, it emphasises that, despite the positive contribution toward good academic performance, the skill of problem-solving is quite interrelated with the self-confidence of the students concerned. The research established soft skills such as teamwork, although useful for communication interactions, had a weak negative correlation with performance at school. This may be an indication of a sort of incongruity between the perception of the students regarding their soft skills and the actual level of achievement they have in academics. From the results, it can be seen that stress-coping abilities played a strong role in the enhancement of social competence, supporting the view that any student who can cope with stress successfully is going to be pretty proficient in team learning environments. Among these, two major factors were identified as being crucial for problem-solving ability and academic success: feedback and reflection on strengths and weaknesses, with an emphasis on the place of formative feedback in education practices. However, the R-squared value of the regression model showed that only about 25% of the variance in academic performance could be explained by the variables included. Thus, other factors might play an important role in students' problem-solving abilities and social competence beyond this study's scope.

### *Future Directions for Research*

Although this study has provided great insights into the relationship between soft skills and academic performance, several limitations were identified that could be addressed in future research. For example, the relatively low R-squared value for the regression model indicates important predictors were likely omitted. Therefore, further studies need to consider a more diversified variety of possible influences on children's problem-solving and social competence, which include elements such as emotional intelligence,

resilience, and motivation that may explain more variance in the case of problem-solving and social competence. The research relied mainly on self-reported measures, which are rather general in quantifying the complexity of soft skills by students. Future studies should consider objective measurements of soft skills, such as direct assessments of problem-solving through real-world tasks or peer evaluations of social competence. Mixed-method approaches can be combined to enhance the understanding of soft skills development and influences on academic and social outcomes.

Another promising direction is longitudinal data exploration. A longitudinal study would be valuable in being able to follow the development of problem-solving and social competence over time, which would provide insight into the way that these skills develop during study. Such information on developmental trajectories would contribute to more targeted interventions at different stages of university education. Such demographic factors of socioeconomic background, ethnicity, and gender are said to be raised only marginally in the paper but are worthy of inclusion in future research on how they intersect with the development of soft skills, especially given observed variations in the ability to solve problems that transcend different demographic groups. This may deepen understanding of inequalities in educational outcomes and inform policies aimed at the causes behind these disparities.

Further studies are important into the efficacy of digital learning environments concerning the development of soft skills. As the significance of online and hybrid modes of learning is increasing rapidly, there is a great necessity to study how these environments shape their students' skills in problem-solving and social competence. In this area, future studies can investigate how virtual collaboration tools and digital feedback mechanisms facilitate the development of these critical skills for distance learning.

In conclusion, this study points out the vital role of confidence in problem-solving, stress management, and engaging students in problems for university students to develop problem-solving skills and social competence. These findings bear very important implications for educational practice and policy and indicate an imperative need for holistic integration of soft skills into the curricula and assessment framework of universities. These would then serve as the basis through which new channels of inquiry could be pursued into how further this knowledge is developed as related to complicated factors that go to determine outcome results of students' performance at both academic and social levels. Such knowledge will be required in the shaping of more effective interventions and policies to enhance the holistic development of students through higher education.

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## References

- Almeida, F., & Morais, J. (2021). Strategies for Developing Soft Skills Among Higher Engineering Courses. *Journal of Education*, 002205742110164. <https://doi.org/10.1177/00220574211016417>
- Azer, S. A. (2001). A critical review of its educational objectives and the rationale for its use. *Neurosciences*, 6(2), 83–89.
- Bandura, A. (1977). Self-efficacy: toward a Unifying Theory of Behavioral Change. *Psychological Review*, 84(2), 191–215.
- Borge, M., & White, B. (2016). Toward the Development of Socio-Metacognitive Expertise: An Approach to Developing Collaborative Competence. *Cognition and Instruction*, 34(4), 323–360. <https://doi.org/10.1080/07370008.2016.1215722>
- Bottomley, S., & Denny, P. (2011). A participatory learning approach to biochemistry using student authored and evaluated multiple-choice questions. *Biochemistry and Molecular Biology Education*, 39(5), 352–361. <https://doi.org/10.1002/bmb.20526>
- Brata, D. P. N., & Mahatmaharti, A. K. (2020). The implementation of Problem Based Learning (PBL) to develop student's soft-skills. *Journal of Physics: Conference Series*, 1464, 012020. <https://doi.org/10.1088/1742-6596/1464/1/012020>
- Bryman, A. (2016). *Social Research Methods*, Oxford University Press.
- Carter, D. F., Ro, H. K., Alcott, B., & Lattuca, L. R. (2015). Co-Curricular Connections: The Role of Undergraduate Research Experiences in Promoting Engineering Students' Communication, Teamwork, and Leadership Skills. *Research in Higher Education*, 57(3), 363–393. <https://doi.org/10.1007/s11162-015-9386-7>

- Chandra, Y. (2020). Online education during COVID-19: perception of academic stress and emotional intelligence coping strategies among college students. *Asian Education and Development Studies*, 10(2), 229–238. <https://doi.org/10.1108/aeds-05-2020-0097>
- Chamorro-Premuzic, T., & Furnham, A. (2006). Intellectual Competence and the Intelligent Personality: A Third Way in Differential Psychology. *Review of General Psychology*, 10(3), 251–267. <https://doi.org/10.1037/1089-2680.10.3.251>
- Cimatti, B. (2016). DEFINITION, DEVELOPMENT, ASSESSMENT OF SOFT SKILLS AND THEIR ROLE FOR THE QUALITY OF ORGANIZATIONS AND ENTERPRISES. *International Journal for Quality Research*, 10(1), 97–130. <https://doi.org/10.18421/IJQR10.01-05>
- Cojocaru, S. (2023). Transformative Social and Emotional Learning (T-SEL): The Experiences of Teenagers Participating in Volunteer Club Activities in the Community. *International Journal of Environmental Research and Public Health*, 20(6), 4976. <https://doi.org/10.3390/ijerph20064976>
- Cooksey, R. W. (2020). Descriptive Statistics for Summarising Data. Illustrating Statistical Procedures: Finding Meaning in Quantitative Data, 1, 61–139. [https://doi.org/10.1007/978-981-15-2537-7\\_5](https://doi.org/10.1007/978-981-15-2537-7_5)
- Denham, S. A. (2006). Social-Emotional Competence as Support for School Readiness: What Is It and How Do We Assess It? *Early Education & Development*, 17(1), 57–89. [https://doi.org/10.1207/s15566935eed1701\\_4](https://doi.org/10.1207/s15566935eed1701_4)
- Doménech-Betoret, F., Abellán-Roselló, L., & Gómez-Artiga, A. (2017). Self-Efficacy, Satisfaction, and Academic Achievement: The Mediator Role of Students' Expectancy-Value Beliefs. *Frontiers in Psychology*, 8(1193). <https://doi.org/10.3389/fpsyg.2017.01193>
- Domitrovich, C. E., Durlak, J. A., Staley, K. C., & Weissberg, R. P. (2017). Social-Emotional Competence: An Essential Factor for Promoting Positive Adjustment and Reducing Risk in School Children. *Society for Research in Child Development*. <https://srcd.onlinelibrary.wiley.com/doi/abs/10.1111/cdev.12739>
- Doorn, J. R., & Van Doorn, J. D. (2014). The quest for knowledge transfer efficacy: blended teaching, online and in-class, with consideration of learning typologies for non-traditional and traditional students. *Frontiers in Psychology*, 5. <https://doi.org/10.3389/fpsyg.2014.00324>
- Ghani, A., Hashim, R. C., & Yusoff, Y. M. (2018). THE EMPLOYABILITY SKILLS OF MALAYSIAN UNIVERSITY STUDENTS. *INTERNATIONAL JOURNAL of MODERN TRENDS in SOCIAL SCIENCES (IJMTSS)*, 1(3). <https://gaexcellence.com/index.php/ijmtss/article/view/641>
- Ghaleb, B. D. S. (2024). Effect of Exam-Focused and Teacher-Centered Education Systems on Students' Cognitive and Psychological Competencies. *International Journal of Multidisciplinary Approach Research and Science*, 2(02), 611–631. <https://doi.org/10.59653/ijmars.v2i02.648>
- Goldschmid, B., & Goldschmid, M. L. (1976). Peer teaching in higher education: A review. *Higher Education*, 5(1), 9–33. <https://doi.org/10.1007/bf01677204>
- Goodnough, K. (2006). Enhancing pedagogical content knowledge through self-study: an exploration of problem-based learning. *Teaching in Higher Education*, 11(3), 301–318. <https://doi.org/10.1080/13562510600680715>
- Grove, N. P., & Bretz, S. L. (2012). A continuum of learning: from rote memorization to meaningful learning in organic chemistry. *Chem. Educ. Res. Pract.*, 13(3), 201–208. <https://doi.org/10.1039/c1rp90069b>
- Gyenes, A. (2019). Title Critical Thinking as Concept and Practice in the Internationalization Strategies of Japanese Universities. *Osaka University*. <https://doi.org/10.18910/76352>
- Hill, P. L., & Jackson, J. J. (2016). The Invest-and-Accrue Model of Conscientiousness. *Review of General Psychology*, 20(2), 141–154. <https://doi.org/10.1037/gpr0000065>
- Jones, S. M., Barnes, S. P., Bailey, R., & Doolittle, E. J. (2017). Promoting Social and Emotional Competencies in Elementary School. *The Future of Children*, 27(1), 49–72. <https://www.jstor.org/stable/44219021>
- Krathwohl, D. R. (2002). A Revision of Bloom's Taxonomy: An Overview. *Theory into Practice*, 41(4), 212–218. [https://doi.org/10.1207/s15430421tip4104\\_2](https://doi.org/10.1207/s15430421tip4104_2)
- Liu, Z., Hu, R., & Bi, X. (2022). The effects of social media addiction on reading practice: a survey of undergraduate students in China. *Journal of Documentation*. <https://doi.org/10.1108/jd-05-2022-0111>
- Liu, J., Kuhfeld, M., & Lee, M. (2023). Noncognitive Factors and Student Long-Run Success: Comparing the Predictive Validity of Observable Academic Behaviors and Social-Emotional Skills. *Educational Policy*. <https://doi.org/10.1177/08959048231209262>
- McClelland, M. M., Morrison, F. J., & Holmes, D. L. (2000). Children at risk for early academic problems: the role of learning-related social skills. *Early Childhood Research Quarterly*, 15(3), 307–329. [https://doi.org/10.1016/s0885-2006\(00\)00069-7](https://doi.org/10.1016/s0885-2006(00)00069-7)
- Nghia, T. L. H. (2019). *Building Soft Skills for Employability*. Routledge. <https://doi.org/10.4324/9780429276491>
- Persky, A. M., Medina, M. S., & Castleberry, A. N. (2018). A Review of Developing Critical Thinking Skills in Pharmacy Students. *American Journal of Pharmaceutical Education*, 83(2), ajpe7033. <https://doi.org/10.5688/ajpe7033>
- Pui, Q., Wai, J., Leung, S., & Thomas. (2015). Enhancement of self-efficacy and interest in learning English of undergraduate students with low English proficiency through a collaborative learning program. *American Journal of Educational Research*, 3(10), 1284–1290. <https://doi.org/10.12691/education-3-10-12>
- Prada Creo, E. de, Mareque, M., & Portela-Pino, K. (2020). The acquisition of teamwork skills in university students through extra-curricular activities. *Education + Training*, 63(2), 165–181.
- Rao, M. S. (2024). *Soft Skills - Enhancing Employability*. I. K. International Pvt Ltd.
- Robles, M. M. (2012). Executive Perceptions of the Top 10 Soft Skills Needed in Today's Workplace. *Business Communication Quarterly*, 75(4), 453–465. <https://doi.org/10.1177/1080569912460400>
- Rozgonjuk, D., Saal, K., & Täht, K. (2018). Problematic Smartphone Use, Deep and Surface Approaches to Learning, and Social Media Use in Lectures. *International Journal of Environmental Research and Public Health*, 15(1), 92. <https://doi.org/10.3390/ijerph15010092>

- Saman, A., & Wirawan, H. (2023). Predicting students' soft skills: the role of psychological capital, psychological well-being and grade levels. *Journal of Education and Training*, 66(1), 17–34. <https://doi.org/10.1108/et-10-2022-0405>
- Schislyaeva, E. R., & Saychenko, O. A. (2022). Labor Market Soft Skills in the Context of Digitalization of the Economy. *Social Sciences*, 11(3), 91. <https://doi.org/10.3390/socsci11030091>
- Succi, C., & Canovi, M. (2019). Soft skills to enhance graduate employability: comparing students and employers' perceptions. *Studies in Higher Education*, 45(9), 1834–1847. <https://doi.org/10.1080/03075079.2019.1585420>
- Tabassum, R., Akhter, N., & Iqbal, Z. (2020). Relationship between Social Competence and Academic Performance of University Students. *Journal of Educational Research*, 23(1).
- Tem, S., Kuroda, A., & Tang, K. N. (2020). The Importance of Soft Skills Development to Enhance Entrepreneurial Capacity. *International Educational Research*, 3(3), p1. <https://doi.org/10.30560/ier.v3n3p1>
- Tran, T. T. (2013). Limitation on the development of skills in higher education in Vietnam. *Higher Education*, 65(5), 631–644. <https://doi.org/10.1007/s10734-012-9567-7>
- University of Florida. (n.d.). Bloom's Taxonomy Graphic Description - Center for Instructional Technology and Training - University of Florida. <https://citt.ufl.edu/resources/the-learning-process/designing-the-learning-experience/blooms-taxonomy/blooms-taxonomy-graphic-description/>
- Zdanevych, L. V., Buchkivska, G. V., Greskova, V. V., Andriievskyi, B. M., & Perminova, L. A. (2020). Creativity Formation in the Context of Social and Psychological Adaptation of Preschoolers Aged 5-6 Years. *International Journal of Cognitive Research in Science Engineering and Education*, 8(Special issue), 79–91. <https://doi.org/10.23947/2334-8496-2020-8-si-79-91>