

# Perceived Learning Environment Support, Academic Self-Efficacy, and Student Academic Engagement in Libyan Public Universities: A Conceptual Framework for the University of Tripoli

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## ABSTRACT

*Student academic engagement (SAE) has become a central concern in higher education research and policy, yet relatively little is known about how engagement is shaped by the interaction between institutional conditions and psychological resources in fragile and conflict-affected systems. This conceptual study proposes a framework in which the perceived learning environment serves as a key institutional resource, academic self-efficacy (ASE) operates as a core psychological mechanism, and student academic engagement represents the primary outcome in Libyan public universities, with the University of Tripoli used as an illustrative context. Drawing on social cognitive theory and learning-environment research, the study conceptualises perceived learning environment support (PLES) as encompassing teacher support, student involvement, and the encouragement of investigation. Academic self-efficacy is theorised as a central personal resource through which support is cognitively and motivationally processed, while engagement is treated as a multidimensional construct comprising behavioural, cognitive, and emotional dimensions. Building on propositions, the study outlines a quantitative pathway for empirical testing using validated instruments (e.g., WIHIC, academic self-efficacy scale, and a generic student engagement scale) and structural equation modelling with a large sample of undergraduates at the University of Tripoli. Conceptual, the framework bridges system-level analyses of Libyan higher education with student-level experiences, highlighting mechanisms that are both theoretical meaningful and practically implementation. The study concludes by discussing implications for institutional policy and practice, and by identifying priorities for future empirical work in Libya and other higher education systems operating under conditions of adversity and transition.*

**Keywords:** Perceived learning environment support; academic self-efficacy; student academic engagement; higher education; Libya; University of Tripoli; conceptual framework; structural equation modelling.

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## I. Introduction

Student engagement has become a central concern in contemporary higher education research because it captures the behavioural, cognitive, and emotional investment that students make in learning activities and in the broader life of their institutions. Recent international reviews have consistently shown that higher levels of engagement are associated with improved academic achievement, persistence, satisfaction, and participation in high-impact educational practices, particularly in expanding systems in developing countries (Gulko et al., 2024; Öz & Boyaci, 2021). In parallel, the concept of engagement has increasingly been framed as a multidimensional construct that can be shaped – positively or negatively – by institutional contexts and by students' own psychological resources. In Libya, the field of higher education has experienced a rapid quantitative growth but in extremely difficult political, economic and security circumstances. Descriptive and policymaking research records the destabilization of the university capacity to offer successful learning conditions and systematically reinforce student achievement by conflict, economic turbulence, ineffective governance and disjointed quality-assurance systems (Nasef et al., 2020; Elkhouly et al., 2021; Aboudaber, 2023; Elfakhri, 2025). In the specific case of public universities, there is overcrowding of classroom spaces, lack of sufficient infrastructural amenities, as well as scarce academic and psychological support facilities. The recent findings of the University of Tripoli show that long-term political crises have had a major negative effect

on the mental health and academic performance of students such as low motivation and academic participation (AlHammadi, 2025). Such circumstances are particularly significant in the context of learning about interactions between the institutional environment and the inner resources of the students to influence their interaction with the learning experiences. The backbone of the higher education system in Libya is the public university, which takes the largest portion of undergraduate students and has the primary role of producing human capital of the country. The University of Tripoli is the biggest governmental institution, having more than 45,000 to 50,000 students and around 2,5002,999 academic individuals, which appeals to every part of the country and every socio-economic bracket (University of Tripoli, 2025; uniRank, 2025). The University of Tripoli in medical and other fields has been at the forefront of national capacity building, despite facing obstacles in adjusting to modern calls to engage the community, do research, and ensure quality under the banner of instability (Nasef et al., 2020). The analytical importance of concentrating on a large, state-funded university is thus analytically warranted: state institutions are the ones that most directly are informed by the policies, resource limitations, and regulatory environments, and they are where theorizing of the effects that perceived learning environments have on the engagement of Libyan students is possible. Empirical studies on the subject conducted internationally suggest that student engagement is not entirely an individual action or motivation issue. Instead, participation is highly determined by the perception of students with regards to the friendliness of their learning settings, as well as their opinions about their potential to perform well in academics. Recent meta-analysis reviewing ASE literature across various settings shows that ASE or the beliefs held by students about their ability to execute academic tasks successfully is one of the strongest psychological predictors of academic engagement and subsequent academic results (Fatimah et al., 2024). Complementary studies that are based on presage-process-product models show that institutional support, social and emotional capabilities, and interpersonal relationships within the university positively or negatively influence engagement, and these influences are often indirect through mediating methods by using self-beliefs and perceived support of students (Guo et al., 2024; Gulko et al., 2024). These results imply that any serious move to intensify the participation in Libyan universities should combine both the environmental and psychological aspects. In spite of this international evidence, the new literature on higher education in Libya has been largely concerned with structural and governance matters including strategic planning, accreditation, crisis management and national quality systems, but not theoretically explicit models of student engagement. Analyses of higher education under “extreme adversities” emphasise institutional resilience, regulatory reform, and system-level challenges, but they give limited attention to how students themselves experience their learning environments and how these experiences translate into engagement or disengagement (Nasef et al., 2020; Aboudaber, 2023; Elfakhri, 2025). At the same time, empirical work at the University of Tripoli documents serious mental-health burdens and compromised academic performance among undergraduates in the context of prolonged political crises. However, these studies do not embed their findings within a broader framework linking perceived institutional support, ASE, and daily engagement in learning activities (AlHammadi, 2025). Accordingly, a clear conceptual and contextual gap exists. To date, no study has proposed a theoretically coherent framework specifically tailored to Libyan public universities that (a) treats perceived learning environment support as a central, modifiable institutional input, (b) positions ASE as a mediating mechanism through which that perceived support influences students’ behaviours and emotions, and (c) conceptualises student engagement as a multidimensional outcome encompassing behavioural, cognitive, and emotional components. Filling this gap is crucial for at least two reasons. First, without an explicit model of how institutional conditions and student-level processes interact, policy initiatives in Libyan universities risk remaining ad hoc, targeting isolated structural problems while overlooking the mechanisms through which students actually engage with their studies. Second, a Libyan-specific framework can extend international theory by incorporating the distinctive influence of prolonged conflict, resource scarcity, and institutional volatility on students’ perceptions of support and efficacy in a mass public system. This conceptual study, therefore, develops a theoretical framework for understanding student engagement among undergraduates in Libyan public universities, using the University of Tripoli as a paradigmatic reference case. The proposed model conceptualises PLES as the independent construct, ASE as a mediating variable, and multidimensional student engagement as the primary dependent outcome. The framework is intentionally designed as a theoretical lens rather than an empirical model: it synthesises findings from recent Libyan and international studies, derives theoretically grounded propositions about the relationships among these constructs, and delineates how future empirical research could operationalise and test these propositions with the large and diverse undergraduate population at the University of Tripoli. In expressing this framework, the study aims at contributing three key points. Ideologically, it combines both environmental and psychological view of engagement into one model that is aware of the unique realities of Libyan higher education of the people. Methodologically, it elucidates the main constructs and hypothesized pathways that can be used to design survey based, longitudinal and mixed method studies with well defined student population, including the undergraduates of the University of Tripoli. In practice, it offers a background to evidence-based interventions in public higher universities, such as improved academic and psychological support provisions,

pedagogical growth, and institutional policies that can empower perceived support in the learning environment, the scholarly sense of ASE, and, finally, the robust and equal student engagement in the Libyan public higher-education system.

## II. Literature Review

### Student Academic Engagement (SAE)

It is generally accepted that SAE is a multidimensional construct and that it involves behavioural, cognitive, emotive and social aspects of involvement and investment in the learning process of students. The recent systematic reviews in the higher education sector have highlighted that engagement is not a single behaviour (including attendance), but a complicated shape of exertion, concentration, enthusiasm, and participation that manifests in the classroom, online, and non-academic learning environments (Bergdahl et al., 2024). The empirical studies based on multidimensional measurement models indicate that behavioural (e.g., participation, persistence) and cognitive (e.g., deep processing, self-regulation) and emotional engagement (e.g., interest, enjoyment, sense of belonging) are interdependent dimensions, but all of them have distinct impacts on academic achievements (Hasanov et al., 2021). The research in higher education has always associated greater engagement with increased achievement, improved retention, and reduced dropout intentions. Both longitudinal and cross-sectional research instill that engaged students have a higher likelihood of engaging in deep learning strategies, continuing despite the challenge, and express more satisfaction with their programmes (Korhonen et al., 2025; Isaeva et al., 2023). These correlations are observed to be strong in different learning formats (face-to-face, blended, online) and disciplines, implying that the engagement is one of the core mechanisms that institutional practices and learning environments are likely to affect student success (Dang, 2025). Recent studies also emphasise the mediating role of engagement as a process. Research conducted in blended and technology-rich settings suggests that engagement functions as the driver of the implication of instructional support, digital technology, and classroom management on learning performance and satisfaction (Kok and Pua, 2025; He and Salleh, 2025). This can be used to justify engagement as the major dependent variable in the current conceptual study, where a good learning environment and the self beliefs held by students are converted into real academic gains in the Libyan higher education institutions.

### Perceived Learning Environment Support (PLES)

PLES is the viewpoint of students on how much their learning environment is considered to support them in terms of academic, emotional, and instrumental means of accomplishing their goals. In tertiary education, this will often cover lecturer support (e.g. clarity, availability, feedback), peer support, fairness and respect, participation-promoting pedagogical practices, and access to learning resources (Bizimana, 2025). Recent research has also theorized supportive learning environments as those that are inclusive, equitable, and responsive to the needs of students to enable them enjoy active and safe learning experience. Empirical studies conducted in a variety of settings reveal that when students see the classrooms and programmes as facilitating, they will be more apt to engage, cooperate and stay with demanding tasks. Indicatively, Bizimana (2025) also discovered that a conducive learning environment in the classroom was a predictor of behavioural, cognitive, and emotional involvement in secondary and university students in Rwanda. Likewise, a 2025 systematic review of perceived teacher support and student engagement in higher education found a uniformly positive correlation between teacher support, conceptualised as care, autonomy support, instructional clarity, and accessibility with engagement in contexts, in part by its impact on student motivation and student self-beliefs (Prananto et al., 2025). Recent quantitative research goes on to suggest that teacher and institutional support leads to the satisfaction of basic psychological needs (autonomy, competence, relatedness), which subsequently lead to engagement and persistence (Guo et al., 2025; Tvedt et al., 2025). In this perspective, PLES does not exist as a passive background status, but the active social resource that determines the way students feel, think, and behave in their courses. Centralized governance, scarcity of resources and high enrolments in the Libyan public higher education sector are major determinants of the learning environment in the sector. Universities are still the leading providers of post-secondary education and are completely financed and controlled by the state, such as the University of Tripoli (Shafter, 2020; Aboudaber, 2023). The research of Libyan universities reveals that there are still many problems, such as full classrooms, excessive use of traditional lectures, insufficient technological facilities, and lack of consistent support services (Ghawail et al., 2021; Badi, 2024). Simultaneously, current studies involving Libyan undergraduates indicate that the lecture-based format remains important to students as it allows them to have direct communication with lecturers and peers, is regarded as an essential source of academic and social support (Al-Shredi, 2025). It is in this context that research into perceived support of learning environments in the case of a large Libyan public university is theoretically and practically relevant. Most of the Libyan undergraduates are enrolled in public universities, which are regulated and funded with similar constraints and pressured to enhance quality and efficiency the most (Shafter, 2020;

Elfakhri, 2025). Research into the perceived supportiveness of such environments by students can be used to influence changes in teaching, student services, and strategic planning.

### **Academic Self-Efficacy (ASE)**

ASE is the beliefs of students that they can academically perform well in academic activities, including mastering course work, studying to gain academic performance in examinations, and doing assignments. It is based on the social cognitive theory, which assumes that human behaviour is conditioned by mutual interactions between personal factors (beliefs, goals), behaviour and environmental conditions (Bandura, 1997). When students feel they have a shot, they will tend to have higher expectations, work hard, manage their learning and persist despite the hardships. In the contemporary reviews, the centrality of ASE in the higher education outcomes is affirmed. According to Schunk and DiBenedetto (2020), self-efficacy beliefs have a positive effect on academic motivation, self-regulation, and academic performance on educational levels. According to a recent systematic review of ASE among university students, a high level of self-efficacy is always linked to academic performance, a lower level of procrastination, and more favorable learning skills (Sánchez et al., 2025). It is also shown in meta-analytic results that ASE and academic engagement are positively and significantly related and indicate that the more the students believe in their abilities, the more they want to engage in learning processes (Fatimah et al., 2024). The recent empirical research also indicates that self-efficacy has a mediating effect on the association between contextual supports and student outcomes. Research in higher education has also shown that ASE positively influences academic achievement, and peer norms and supportive teaching positively impact performance (Luo et al., 2023; Woreta et al., 2025; Zhou, 2025). These results, which are consistent with the social cognitive theory, justify the perception that self-efficacy is a major individual process in which enabling environments impact academic behaviour by students.

#### **Summary of Core Constructs**

Drawing on recent international and Libyan literature, the present conceptual study adopts the following working definitions: PLES: students' perceptions that their university environment—encompassing lecturers, peers, pedagogical practices, and resources—provides academic, emotional, and instrumental support that enables successful learning (Bizimana, 2025; Prananto et al., 2025). ASE: students' beliefs in their capability to successfully perform academic tasks and to manage the demands of university study (Bandura, 1997; Schunk & DiBenedetto, 2020; Fatimah et al., 2024). SAE: a multidimensional pattern of behavioural (effort, participation, persistence), cognitive (deep processing, self-regulation), and emotional (interest, belonging) involvement in learning activities in higher education (Hasanov et al., 2021; Bergdahl et al., 2024).

### **Proposition Development**

#### **PLES and ASE**

According to social cognitive theory, self-efficacy beliefs are influenced by the environment, that is conditions experienced by the students such as level of support, vicarious modelling, verbal persuasion, and stress and emotion control (Bandura, 1997). Positive learning conditions have better guidance, positive feedback, and gradual achievement, which further strengthen the feeling of competence in students. The current empirical research proves that ASE has a positive correlation with perceived teacher support and autonomy-supportive teaching practices among university learners (Luo et al., 2023; Li et al., 2025). The subjective experience of a supportive environment would be particularly important to support self-beliefs in Libyan public universities in which large classes and infrastructural pressures can serve as a significant environmental factor undermining the students. By being more approachable, setting high, but not unrealistic expectations, and scaffolding, lecturers in these settings could be able to make students reframe a difficult context as one to handle and not to be overwhelmed by. Accordingly, the first proposition is:

P1: PLES is positively associated with ASE among undergraduate students in Libyan public universities.

#### **PLES and SAE**

Perceived teacher and overall learning environment support has always been a core foreteller of engagement among students as identified in the engagement literature. Empirical studies and recent systematic reviews of the field of higher education have shown that behavioral, cognitive, and emotional engagement has a positive relation with teacher support which includes autonomy support and emotional care (Prananto et al., 2025; Guo et al., 2025; Kok and Pua, 2025). Positive situations help them feel like they belong and are safe and this makes students contribute in class, work with peers and persevere through the challenges. Bizimana (2025) illustrates how classroom learning environment indicates several dimensions of engagement by encouraging inclusive teaching, equitable and fair teaching. In the same way, Hasanov et al. (2021) demonstrate that emotional, behavioural, and cognitive engagement are all mediators between classroom experiences and learning outcomes. In Libyan government-run higher education institutions, where students complain of crowded lecture halls and poor access to technological resources (Ghawail et al., 2021; Elfakhri, 2025),

perceived instructor and peer support can overcome structural obstacles and motivate students to participate actively. Thus, the second proposition is:

P2: PLES is positively associated with SAE among undergraduate students in Libyan public universities.

#### ***ASE and SAE***

The studies conducted in different areas and in different studies assure that the students who are more active in their fields of study are those who have higher ASE. According to the meta-analytic data, the ASE is positively correlated and moderately connected with academic engagement, such as effort, persistence, and involvement in learning activities (Fatimah et al., 2024). Self-efficacious students tend to embrace mastery-oriented goals and use self-controlled learning strategies and stay engaged in the learning process even with the challenge (Schunk and DiBenedetto, 2020; Figueiredo, 2024). In recent research of higher education environments, it has been reported that ASE predicts different types of engagement behavioural, cognitive, and emotional engagement, and, indirectly, academic achievement and satisfaction (Cutipa-Flores et al., 2025; He and Salleh, 2025). Self-efficacy might be especially relevant in the context of uncertainty and instability, as is the case with Libyan public universities, to maintain the desire to work and pay attention to studying. Accordingly, the third proposition is:

P3: ASE is positively associated with SAE among undergraduate students in Libyan public universities.

#### ***The Mediating Role of ASE***

A growing body of research indicates that ASE can mediate the relationship between perceived environmental support and engagement. Structural equation modelling studies show that teacher support enhances self-efficacy, which in turn predicts levels of engagement in both face-to-face and online courses (Luo et al., 2023; Alrashidi & Alshammari, 2025). A recent BMC Psychology article on EFL university students demonstrates that self-efficacy partially mediates the relationship between perceived teacher support and engagement, suggesting that supportive environments work in part by strengthening students' beliefs in their own capabilities (Liang et al., 2025). Similar patterns have been observed in studies of physical education and digital learning environments, where ASE and related expectancy beliefs transmit the positive effects of teacher autonomy support on engagement (Li et al., 2025; Zhai et al., 2025). These results are in line with the social cognitive theory, which assumes that situational effects (like supportive teaching) do indirectly influence behaviour via cognitive and motivational processes. The psychological pathway of self-efficacy can be particularly appropriate in the Libyan context of the public university where the objective quality of learning settings can be constrained by structural factors and the political unrest. In spite of the limited resources, lecturers who are well-guided, positive, and appreciative of their progress can promote self-efficacy in students and hence maintain engagement. Thus, the fourth proposition is:

P4: ASE mediates the relationship between PLES and SAE among undergraduate students in Libyan public universities.

### **III. Methodology**

#### ***Sample and Data Collection***

The population to be targeted in any future empirical test of this conceptual framework will be undergraduate students attending the University of Tripoli, which is a big, state-owned, publicly funded university in Libya. The University of Tripoli is the oldest and largest publicly funded university in Libya, which is generally considered to be a flagship institution in the Libyan higher education system and has a population of over 45,000 students pursuing a wide variety of majors (University of Tripoli, 2025; uniRank, 2025). Being a state university, it is regulated at the national level, and it is mainly dependent on the state funding, which predisposes it to the conditions that define Libyan higher education in general (Shafter & Ruth, 2020; Elkhouly et al., 2021). Focusing on this single public university is justified for several reasons. First, the University of Tripoli has a very large and socio-economically diverse student body, providing a rich setting in which to examine how PLES, ASE, and student engagement co-occur under conditions of massification and resource constraints (Elkhouly et al., 2021; Elfakhri, 2025). Second, restricting the study to one public institution reduces institutional heterogeneity in governance, funding mechanisms, and quality-assurance procedures that would arise in multi-institutional or public-private samples, thereby strengthening internal validity when estimating the relationships among the constructs (Shafter & Ruth, 2020; Elfakhri, 2025). Third, locating the study in a single university increases the practicality of obtaining administrative permissions, coordinating data collection, and implementing any subsequent interventions that the findings might inform. The target population will be defined as all full-time undergraduate students enrolled in the main teaching faculties of the University of Tripoli, such as Education, Economics and Political Sciences, Engineering, Science, and Information Technology, during the academic year of data collection. Undergraduates are selected because they form the majority of enrolments and are directly exposed to the teaching, assessment, and student-support

practices that constitute the perceived learning environment, and because policy concerns about engagement, persistence, and employability in Libya are particularly pronounced at the undergraduate level (Elkhouly et al., 2021; Elfakhrri, 2025). To ensure that respondents have sufficient experience of the institutional context, the inclusion criteria will require that they have completed at least one semester of study. From this population, a sample will be drawn using a stratified cluster sampling technique. Faculties will first be grouped into broad disciplinary clusters (for example, sciences and engineering, health sciences, social sciences, humanities, and education). Within each cluster, departments or large compulsory course sections will be randomly selected, and all students in the selected classes will be invited to participate. Self-administered questionnaires will be the main method of data collection. Prior to receiving the questionnaire, students will be given a cover letter explaining the purpose of the study, assuring them of anonymity and confidentiality, and emphasising that participation is voluntary and unrelated to course grades, in line with good practice in survey research in higher education (Yusoff & Arifin, 2021). With a total undergraduate population exceeding 45,000 students (University of Tripoli, 2025; uniRank, 2025), it is neither necessary nor feasible to survey all students. In line with contemporary recommendations for sample size in structural equation modeling, the study aims to obtain at least 400 usable responses. Simulation studies and recent methodological guidelines indicate that sample sizes between 300 and 500 are generally adequate to achieve acceptable power and stable parameter estimates for models with a small number of latent variables and multiple indicators, assuming moderate communalities and well-specified models (Wolf et al., 2013; Hair, 2021; Arifin, 2025). A target of approximately 400 undergraduates, therefore, provides a reasonable balance between statistical requirements and practical feasibility in a single public university context.

### **Measures**

To examine the relationships among PLES, ASE, and SAE, the study will employ established multi-item scales adapted to the Libyan public university context. All items will be presented in Arabic language using a five-point Likert-type response format (1 = strongly disagree to 5 = strongly agree), following recommendations that a consistent response format reduces cognitive load and improves data quality in student surveys (Li et al., 2023; Yusoff & Arifin, 2021). PLES will be assessed using items adapted from the “What Is Happening In this Class?” (WIHIC) learning-environment questionnaire developed by Fraser and colleagues (Fraser et al., 1996). The WIHIC has been widely used in school and university settings to measure students’ perceptions of classroom climate and comprises several subscales, including Student Cohesiveness, Teacher Support, Involvement, Investigation, Task Orientation, Cooperation, and Equity (Fraser et al., 1996; Zandvliet & Fraser, 2021). For the present framework, three WIHIC dimensions that most closely capture the concept of “support” will be used: Teacher Support, Involvement, and Investigation. Approximately 20–24 items will be selected and adapted from these subscales. Illustrative items include: “The lecturer helps me when I have difficulty understanding the course content” (Teacher Support), “I am encouraged to ask questions during lectures” (Involvement), and “The lecturer encourages me to investigate new ideas by myself” (Investigation). The original WIHIC subscales have demonstrated high internal consistency, with Cronbach’s alpha values typically exceeding .80, and stable factor structures across different educational contexts (Fraser et al., 1996; Zandvliet & Fraser, 2021). In the Libyan application, the items will be translated into Arabic and then back-translated into English. A panel of experts in education and measurement will review them for content validity, following established procedures for the cross-cultural adaptation of questionnaires (Yusoff & Arifin, 2021). ASE will be measured using the 9-item ASE (ASE) scale, which was recently validated in Arabic across six Arab countries (Hemade et al., 2025). The ASE scale was designed specifically for higher-education populations and assesses students’ confidence in performing core academic tasks such as taking notes, preparing for examinations, understanding difficult course material, and participating in class discussions (Hemade et al., 2025). Example items include: “I am confident that I can take good notes during lectures”, “I am sure that I can understand the most difficult topics in my courses”, and “I am able to prepare effectively for my examinations”. The Arabic version of the ASE scale has demonstrated excellent psychometric properties, including a unidimensional factor structure, very high internal reliability ( $\omega = .96$ ;  $\alpha = .96$ ), and satisfactory convergent and concurrent validity through associations with psychological distress and perceived social support (Hemade et al., 2025). Because the instrument has already been validated in Arabic, it is particularly suitable for use with Libyan undergraduates, minimising the need for extensive redevelopment. All nine items will be adopted, with only minor wording adjustments if necessary to match local course terminology. Responses will be collected using the same five-point Likert scale employed for the other constructs, consistent with previous research indicating that slight modifications to the response format do not substantially affect the reliability of well-constructed self-efficacy measures (Schunk & DiBenedetto, 2020). SAE will be conceptualized as a multidimensional construct encompassing behavioral, cognitive, and emotional components, and will be measured using the Generic Student Engagement Scale (GSES), developed for higher-education settings (Li et al., 2023). The GSES is a 29-item instrument designed to capture engagement in both face-to-face and online

learning contexts, and comprises five factors: self-regulated learning, cognitive strategy use, experienced emotion, teacher-student interaction, and enjoyment of student life (Li et al., 2023). Each item describes a specific engagement-related behaviour or experience. For example, items include “I try to connect new information with what I already know” (cognitive strategy use), “I actively participate in class discussions” (teacher-student interaction), “I feel interested in most of the courses I am taking” (experienced emotion) and “I enjoy my life as a university student” (enjoyment of student life) (Li et al., 2023). In the original validation, the GSES demonstrated good internal consistency for the total scale and each subscale (Cronbach’s alpha values generally  $\geq 0.85$ ) and an acceptable model fit in confirmatory factor analysis, supporting its use as a comprehensive measure of student engagement in higher education (Li et al., 2023). For use in a Libyan public university, the full 29-item GSES will be translated into Arabic and adapted where necessary. Particular attention will be paid to items that explicitly refer to online learning, ensuring that wording remains meaningful in a context where face-to-face instruction still dominates but where digital components are increasingly being introduced (Ghawail et al., 2021). As with the other scales, translation and adaptation will follow forward-back translation and expert-review procedures (Yusoff & Arifin, 2021). A pilot study with a small group of University of Tripoli undergraduates will be conducted to verify the clarity of items and to confirm the factor structure of the GSES in this context.

#### **Data Analysis**

The data collected from the sample will be analysed using the Statistical Package for the Social Sciences (SPSS) for preliminary analyses and SmartPLS for testing the conceptual model. Descriptive statistics (means, standard deviations, and frequency distributions) will be computed first to profile the sample and examine the distribution of scores on the main variables. Bivariate correlations will then be estimated to provide an initial indication of the associations among PLES, ASE, and student engagement. To evaluate the measurement model, confirmatory factor analysis will be conducted to assess the reliability and validity of each construct. Internal consistent will be examined using Cronbach’s alpha and composite reliability. At the same time, convergent validity will be assessed through indicator loadings and the average variance extracted, while discriminant validity will be evaluated by comparing the square roots of the average variance extracted with inter-construct correlations (Hair, 2021). Once satisfactory measurement properties have been established, the structural model corresponding to the conceptual framework will be tested. The structural analysis will estimate the direct effects of PLES on ASE and student engagement, the direct effect of ASE on student engagement, and the indirect (mediated) effect of perceived support on engagement through ASE. Mediation will be evaluated using bootstrapped confidence intervals for the indirect effect, following current best practice in SEM applications (Hair, 2021; Wolf et al., 2013). SmartPLS 3 or comparable software can be used to estimate the model and obtain bootstrap-based significance tests (Ringle et al., 2015). The results of such an empirical study, when conducted, will provide evidence on whether the theoretical propositions advanced in this conceptual study are supported in the context of a large Libyan public university.

#### **IV. Discussion**

This conceptual study proposes a framework in which the perceived learning environment serves as a core institutional resource, ASE operates as a key psychological mechanism, and SAE constitutes the primary outcome in Libyan public universities, with the University of Tripoli as a paradigmatic case. By integrating environmental and psychological perspectives, the framework addresses documented gaps in Libyan higher-education research, which has primarily focused on structural and governance issues, while providing limited attention to students’ lived experiences of support, efficacy, and engagement in contexts of prolonged instability and resource constraints. The framework makes an explicit link between social cognitive theory (Bandura, 1997), learning-environment research (Fraser et al., 1996; Zandvliet & Fraser, 2021), and contemporary engagement scholarship in higher education (Hasanov et al., 2021; Bergdahl et al., 2024). It conceptualises PLES as a modifiable institutional input that encompasses teacher support, opportunities for involvement, and encouragement of investigation. ASE is positioned as a central personal resource through which these contextual conditions are cognitively and motivationally processed (Schunk & DiBenedetto, 2020; Hemade et al., 2025). SAE is treated as a multidimensional pattern of behavioural, cognitive, and emotional investment that mediates the effects of institutional practices on learning, persistence, and well-being (Hasanov et al., 2021; Li et al., 2023; Bergdahl et al., 2024). In the Libyan context, this integration addresses an important theoretical gap. Analyses of higher education under conditions of “extreme adversities” in Libya have emphasised system-level challenges—such as fragmented quality assurance, weak governance, and infrastructural deterioration—without fully theorising how these conditions are translated into students’ perceptions of support, self-beliefs, and daily engagement (Nasef et al., 2020; Elkhouly et al., 2021; Aboudaber, 2023; Elfakhri, 2025). At the same time, evidence from the University of Tripoli suggests that political crises and economic instability have had a lasting negative impact on mental health and academic functioning (AlHammadi, 2025). Situating PLES and ASE at

the core of a conceptual model of engagement provides a meso-level explanation that links macro-level constraints to micro-level student behaviours. P1 that PLES is positively associated with ASE—follows directly from social cognitive theory, which emphasises mastery experiences, vicarious learning, verbal persuasion, and the regulation of affective states as key sources of self-efficacy (Bandura, 1997). Fostering conditions, which are characterised by clear explanations, constructive feedback and opportunities to be actively involved, enhance the chances that the students may translate their experiences as indicators of competence as opposed to inadequacy. Convergent evidence of this is shown in recent empirical research in the field of higher education: teacher autonomy support and perceived instructional support correlate positively with ASE in a variety of contexts (Luo et al., 2023; Li et al., 2025). The conditions existing in the Libyan public universities, with large classes, the lack of technological facilities, and using the traditional mode of lectures, lead to the situation when students are able to feel easily confused, anonymized, and discouraged (Ghawail et al., 2021; Badi, 2024; Elfakhri, 2025). In these settings, the subjective impression that lecturers are accessible, just, and responsive dimensions measured by the WIHIC subscales of Teacher Support, Involvement and Investigation (Fraser et al., 1996; Zandvliet and Fraser, 2021) will have a particularly important implication in terms of self-efficacy maintenance. In this way the first proposal therefore highlights the significance of considering perceived support as a dynamic, relational process that can either soothe or increase the psychological effect of structural adversity. P2, which is that PLES has a positive correlation to SAE, is closely aligned with the modern studies on the topic of engagement. According to systematic reviews, perceived teacher support, which is emotional care, autonomy support, instructional clarity, and availability, always positively correlates with behavioural, cognitive, and emotional engagement in higher education (Prananto et al., 2025; Guo et al., 2025). Classroom climate studies also indicate that inclusive, equitable, and participatory classrooms promote more willingness to contribute, cooperate, and struggle (Bizimana, 2025; Hasanov et al., 2021). The number of people who can attend lecture halls in the Libyan public sector is quite high, and digital infrastructure is very limited, which restricts the selection of pedagogical strategies that can be applied (Ghawail et al., 2021; Shafter and Ruth, 2020). Nevertheless, it is possible that the perceptions of the same structural conditions differ significantly between students in terms of the way lecturers structure interaction, communicate expectations and give feedback. The fact that the Libyan students are still placing such value on lecture-based instruction, in part due to the direct interaction with the lecturers and other students (Al-Shredi, 2025) indicates that even traditional formats can be used to engage as effective when perceived as supportive. Proposition 2, in turn, notes that, in a resource-constrained setting, perceived support improvement in the existing systems can be increased to significant levels of engagement, prior to the realisation of large-scale infrastructural changes. P3- ASE is positively related to SAE- has a substantial evidence to prove that it is true. Meta-analytic efforts propose that ASE is positively and moderately related to engagement indicators, such as effort, persistence, and participation (Fatimah et al., 2024). Self-efficacious students tend to have more difficult goals, self-regulated learning methods, and stay engaged in the face of challenges (Schunk and DiBenedetto, 2020; Figueiredo, 2024). Latest structural designs in higher education settings attest that ASE forecasts numerous scales of involvement and moderately impacts academic success and satisfaction (Cutipa-Flores et al., 2025; Zhou, 2025). These processes might be especially relevant in Libya, where the lack of solutions to the problem can contribute to uncertainty regarding the worth of investing in academic education, as well as the personal success of students (AlHammadi, 2025; Elfakhri, 2025). Self-efficacy in these contexts can not only be supportive of course-doing, but can assist students in feeling agency and control in the face of bigger instability. Through foregrounding self-efficacy, the role of psychological resources as not peripheral to engagement but central is highlighted by the Prop 3, particularly during negative situations. P4 is ASE mediation between the connection between PLES and SAE, which is a form of synthesising the other connections into a mechanism. According to the recent works in EFL, blended and online learning classrooms, the perceived teacher support increases self-efficacy that predicts the engagement and associated results (Luo et al., 2023; Liang et al., 2025; Alrashidi and Alshammary, 2025). Similar results in the physical education and digital learning can indicate that ASE and performance expectancy mediate the beneficial impact of teacher autonomy support and perceived social support on engagement (Li et al., 2025; Zhai et al., 2025; Woreta et al., 2025). Applying these lessons to Libyan state universities would imply that despite the scarcity of objective resources, lecturers and departments may affect the engagement by conditioning the students to interpret their own capacities. The ASE of students can be reinforced by the use of clear explanations, scaffolded tasks, incremental success, and positive feedback and contributes to other forms of sustained behavioral, cognitive, and emotional involvement. The mediational proposition, therefore, explains the reason, some students are not deterred by structural impediments: they feel that they have sufficient support, which makes them believe that their efforts can indeed be effective. This process is particularly relevant in settings, including the University of Tripoli, where the levels of mental-health burdens and academic stress are high (AlHammadi, 2025).

## V. Implications for theory

The proposed framework has several implications for higher-education theory. First, it extends engagement scholarship by treating PLES and ASE as interdependent rather than parallel predictors of engagement. This nested relationship aligns with presage–process–product perspectives in which institutional inputs shape proximal psychological processes that, in turn, influence learning outcomes (Guo et al., 2024; Gulkó et al., 2024). Second, by grounding the model in the specific conditions of Libyan public universities, the framework contributes to the growing literature on higher education in fragile and conflict-affected settings. It suggests that, under such conditions, the psychological pathway through self-efficacy may be particularly critical for understanding how institutional practices translate into engagement or disengagement. Third, the framework proposes a way to bridge system-level analyses of governance and quality assurance with student-level experiences. Rather than viewing structural reforms and student engagement as separate domains, it conceptualises engagement as a key outcome through which reforms in teaching, support services, and learning environments realise their benefits. This perspective invites future theoretical work to position student engagement more centrally in debates about resilience, equity, and sustainability in higher education systems facing chronic adversity (Nasef et al., 2020; Aboudaber, 2023; Elfakhri, 2025).

The model has also practical and policy implications on Libyan public universities. Theoretically, it reveals that PLES is a strategic tool of enhancing engagement. In practice, it means that institutions ought to measure, in a systematic manner, the perceptions of students concerning support (through validated measures such as modified WIHIC subscales, Fraser et al., 1996; Zandvliet and Fraser, 2021), and can use the outcome to implement targeted outcomes at the faculty and department level. Professional development of lecturers at the classroom level can target the certain behaviour that students feel contributes to their support, such as explanation clarity, availability, question encouragement, and collaborative inquiry promotion (Bizimana, 2025; Prananto et al., 2025). The comparatively low-priced modifications in relatively lecture-only settings, which can be the addition of short interactive acts, the use of formative feedback, and the direct recognition of the effort of the students, can significantly increase the perceived support and, consequently, engagement through self-efficacy (Al-Shredi, 2025). Policies that promote academic advising, peer mentoring and psychological support services are likely to increase the beliefs of the students that the university cares about their success, which will help them to strengthen their self-efficacy and engagement at the institutional level (Guo et al., 2025; Zhai et al., 2025). Since there are indications of a serious mental-health issue among the students of the University of Tripoli (AlHammadi, 2025), the combination of academic and psychological assistance in the student service is at the center of priorities. The framework implies that these services cannot be perceived only as the welfare services but essential elements of the engagement strategy.

The proposed approach to research gives a concrete direction through which the proposed propositions can be empirically tested using survey data of a huge sample of undergraduates in the University of Tripoli. The conceptual clarity and the psychometric strength of the validated scales, such as the WIHIC of PLES, Arabic ASE scale of ASE, and the Generic Student Engagement Scale of multidimensional engagement, are guaranteed by the use of validated scales (Fraser et al., 1996; Li et al., 2023; Hemade et al., 2025). The intended application of structural equation modelling (SEM) using the mediation tests bootstrapped is up-to-date with modern methodological requirements of analyzing relationships and indirect effects of a complex nature (Wolf et al., 2013; Hair, 2021). Nevertheless, several methodological extensions would strengthen future research. First, the initial cross-sectional design limits the ability to make causal inferences. Longitudinal studies that follow students across semesters would allow examination of how changes in perceived support and self-efficacy predict subsequent changes in engagement, and whether the proposed mediation holds over time. Second, multi-institutional samples across different Libyan public universities would help assess the generalisability of the model and identify institutional-level moderators, such as variations in governance structures or resource levels (Shafter & Ruth, 2020; Elfakhri, 2025). Third, mixed-methods designs that integrate qualitative interviews or focus groups could deepen understanding of how students interpret “support” and “efficacy” in their own terms, potentially revealing culturally specific dimensions not fully captured by existing scales (Yusoff & Arifin, 2021). Finally, future research should consider multi-level modeling approaches that nest students within classes or departments, thereby distinguishing between individual-level and contextual-level effects of perceived support. Such designs would align closely with the conceptualisation of learning environment support as both a shared classroom climate and an individual perception (Fraser et al., 1996; Zandvliet & Fraser, 2021).

### Limitations of the conceptual framework

As a conceptual study, the framework is subject to several limitations. First, it focuses on three core constructs. It does not incorporate potentially important moderators such as gender, socio-economic background, prior academic achievement, field of study, or mental-health status, all of which may shape how students perceive support and mobilise self-efficacy (Korhonen et al., 2025; Sánchez et al., 2025). Second, the model assumes a predominantly unidirectional pathway from perceived support to self-efficacy and

engagement, despite empirical evidence suggesting reciprocal relationships: engaged students may elicit more support from lecturers and peers, and may further strengthen their self-efficacy through successful performance (Schunk & DiBenedetto, 2020; Woreta et al., 2025). Third, the framework is based on self-report measures that are vulnerable to common-method bias and social desirability biases especially in hierarchical educational cultures. The integration of self reports with behavioural indicators (e.g. attendance, use of learning platforms) and performance data would give a more complete measure of engagement. Fourth, the model does not directly bring the elements of macro-political and economic factors, yet they are obviously important in Libya; the effect of these aspects is considered as the contextual background. These wider forces may be more systematically combined in the future conceptual work, e.g. placing the current model into a multi-level framework of the national and institutional resilience indicators (Nasef et al., 2020; Aboudaber, 2023; Elfakhri, 2025). These limitations notwithstanding, the suggested framework provides a theoretically based and context specific model of the understanding of SAE in Libyan state-owned higher education institutions. Connecting PLES to engagement via ASE, it underscores mechanisms which are empirically tractable as well as actionable. To policy-makers and university leaders, the model reminds them that enhancing the engagement is not only an issue of infrastructure and regulation but it is also necessary to address systematically the manner in which students perceive their learning environments and the psychological capabilities that they carry with them to the learning environment. To researchers, the framework offers a clear propositions, constructs, and measurement strategies that can be used in future empirical research in Libya, and in other systems of higher education that experience conditions of adversity and transition.

## **VI. Conclusion**

This theoretical paper suggests that SAE in the Libyan higher education institutions needs to be viewed through institutional, psychological, and conduct levels simultaneously. Placing PLES as a focal institutional resource, ASE as a basic psychological process, and SAE as the main outcome, the suggested framework provides a comprehensive explanation of how the everyday in-class life can either contribute to or undermine engagement in the environment of the long-term instability and limited resources. Instead of viewing governance reforms, teaching practices, and student outcomes as distinct spheres the framework clearly connects the three directly via a series of theoretically based propositions which can be tested in an empirical way. This is the main contribution of the model since it defines a mediational route of PLES to engagement through ASE. By doing so, it builds upon what has already been known about engagement in higher education, in that the way students perceive the environment they study in affects their attitudes towards what they feel they are capable of, which subsequently affects their readiness to work hard, pay attention, and feel in their learning process. This direction may be of particular interest in the Libyan context, where both political and economic crisis have exacerbated the stress and mental health pressure of academics, and the scope of pedagogical and technological innovation that can be applied in the short term is constrained by structural considerations. It is hypothesized that despite these limitations, the practices that promote ASE by helping students develop a positive perception of support through effective clarification of concepts, constructive feedback, meaningful engagement, and inquiry opportunities can reinforce ASE and, thus, maintain engagement. There are also significant implications of the proposed framework on an institutional policy and practice. It suggests that the student engagement must not be considered as a pleasant by-product of the teaching process but as a strategic result, in terms of which the investment in the quality of the teaching process, academic advising, and support services can be evaluated. The systematic evaluation of the PLES, with the help of strong and contextually validated instruments, may give evidence in order to implement the specific interventions on the lecturer level, department level, and faculty level. The relational and pedagogical aspects of support, and the growth and combination of academic and psychological support services could be included in the professional development as cost-effective decisions to increase the engagement in the resource-limited environment. Simultaneously, the framework has a number of limitations, which point toward the direction of future research. The model is purposely sparse and fails to include the possible moderators, including gender, socio-economic status, area of research, or mental health.

Also, it fails to specifically model mutual relationships between support, self-efficacy, and engagement. Longitudinal, multi-institutional and mixed methodologies, where feasible with multi-level modelling, would now allow a more based analysis of these dynamics and of how macro-level political and economic conditions mediate in terms of institutional practices. Despite these restrictions, the framework offers a well-organized and contextually based foundations of empirical research. To researchers, it provides them a precise set of constructs, propositions, and methodological standards; to policy-makers and university presidents, it reminds them that to increase student engagement in Libyan public universities, structural reform is not the only solution, but also how students perceive their learning environments and to what degree these environments are conducive to their faith that what they are doing can make a difference.

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