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# The Impact of Locus of Control, Self-Esteem, and Self-Efficacy on the Academic Performance of University Students: Evidence from Public Sector Universities in the Southern Districts of Khyber Pakhtunkhwa, Pakistan

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**Abstract:** *This study aims at exploring the effect of the combined and relative influence of three basic psychosocial constructs (locus of control, self-esteem and self-efficacy) on academic performance of undergraduate university students studying in the five public sector universities of the southern districts of Khyber Pakhtunkhwa, Pakistan (Karak, Lakki Marwat, Kohat, Bannu and Dera Ismail Khan). Each of these constructs has been individually studied for its relationship with student achievement in international literature, but few empirical studies have examined the joint predictive power of these constructs in a single structural model in a resource-poor, South Asian context in higher education. The study describes and examines a structural model that is based on Rotter's Social Learning Theory Locus of Control, Bandura's Social Cognitive Theory Self-efficacy, and Socio-meter Theory Self-esteem, in which Locus of Control, Self-esteem, and Self-efficacy are proposed to be direct precursors of academic performance. The research design was cross-sectional, quantitative, positivist and the data was collected from a target population of 3122 registered students from five universities and a working sample of 343 registered students used, whose data was usable. Standardized instruments that were used included Rotter's Internal-External Locus of Control Scale, the Rosenberg Self-Esteem Scale, and Schwarzer and Jerusalem's General Self-Efficacy Scale as well as a self-reported cumulative grade point average (CGPA) measure of academic performance. In line with contemporary methodological literature, data were analysed using a two-stage approach of measurement and structural model assessment, which was achieved using Partial Least Squares Structural Equation Modelling (PLS-SEM) in SmartPLS 4. The indicators of the measurement model showed acceptable reliability, internal consistency, convergent and discriminant validity. Results from the structural model are expected to show that all three of the variables (internal locus of control, self-esteem, and self-efficacy) have a statistically significant positive impact on academic performance, with the self-efficacy variable expected to be the strongest of the three in line with the evidence from the wider literature in the form of a meta-analysis. The study has implications for the literature on psychology of education by simultaneously modeling three well-established and seldom tested predictors in an underrepresented context, as well as in the context of student counselling services, faculty advising, and curriculum design in Pakistani higher education institutions. The cross-sectional design and self-report measurement limitations and directions for further, longitudinal and experimental research are discussed.*

**Keywords:** police mediation, minor criminal offences, restorative justice, alternative dispute resolution, compoundable offences; section 345 CrPC, Dispute Resolution Councils, criminal justice reform, Pakistan

## Introduction

Academic attainment is one of the most researched outcomes in educational psychology, not only because of its role in certifying individual attainment, but because it serves as an indicator of the success of an educational system, a gauge of employability of its graduates, and, on a societal level, a measure of a nation's human-capital path (Richardson, Abraham, & Bond, 2012). The findings of decades of research suggest that cognitive ability and the quality of instruction are not the only factors that influence academic performance, but that psychosocial, non-intellective dispositions that students enter the learning context also play a significant role (Schneider & Preckel, 2017). Three of these dispositions have drawn consistent and independent lines of research: locus of control, self-esteem and self-efficacy. The concept of locus of control was developed by Rotter (1966) as part of his Social Learning Theory and is a generalized expectancy about whether outcomes in people's lives are due to their actions (internally controlled) or due to other people or chance (externally controlled). Predominantly internal locus of control students attribute success or failure to their own effort and strategy, which has been repeatedly found to be related to more adaptive study behaviors and higher achievement (Rotter, 1966; Findley & Cooper, 1983). Self-esteem, most commonly defined by Rosenberg's (1965) Rosenberg Self-Esteem Scale, is a global assessment of oneself. Sociometer theory (Leary & Baumeister, 2000) suggests that self-esteem is a psychological barometer of one's relational and social status and that it may be said to be validly extended to the academic realm, in which students are continually evaluated in comparison with their fellow students and the norms of the school. There is a significant amount of research carried out in Pakistan and internationally that has found a positive correlation between increased self-esteem and better academic performance, although the findings are inconsistent across different samples and contexts (Arshad, Zaidi, & Mahmood, 2015; Ullah, Shahzada, & Khan, 2024). Self-efficacy, as it has been understood in Bandura's (1977, 1997) Social Cognitive Theory, refers to a person's confidence in his or her ability to plan and carry out the behaviors necessary to achieve a desired level of performance. Self-efficacy is a more specific kind of self-competence or self-efficacy judgement that is more task and domain specific, as opposed to self-esteem which is a more general global sense of self-worth. Self-efficacy is consistently found to be one of the strongest non-cognitive predictors of academic achievement, and is often more powerful than other motivational and attributional variables in explaining academic outcomes (Richardson et al., 2012; Honicke & Broadbent, 2016; Multon, Brown, & Lent, 1991). All three of these three constructs have produced their own body of literature that is independent, well-developed and distinct, but there are relatively few studies that model all three as joint predictors of academic performance, especially outside North American and European samples. Despite the large population of undergraduates in the five public sector universities of the southern districts of Khyber Pakhtunkhwa with high growth, these districts are under-represented in literature that examines subsets of these relationships, such as Waseem and Asim (2020) who modeled self-esteem, self-efficacy, and locus of control as combined regression predictors of academic performance among university students in Karachi. This study attempts to fill this gap by empirically testing a structural model where Locus of Control, Self-esteem and Self-efficacy are modelled as parallel predictors of Academic Performance of undergraduates from these five

universities, using rigorous PLS-SEM methodology adopted from the current international standards for reporting (Hair, Hult, Ringle, & Sarstedt, 2022).

## 1.2 STATEMENT OF THE PROBLEM

Even with the significant policy focus on enhancing physical infrastructure, curriculum content and faculty qualifications in public sector universities, in many institutions including the southern districts of Khyber Pakhtunkhwa (KP), students' academic performance is still below the national standards and dropout and low CGPA rates are a persistent issue at the institutional level. More systematic empirical work on the psychosocial dispositions students bring into the classroom, such as their sense of control over outcomes, their global self-worth and their confidence in their own academic capability, has been directed to a lesser extent than effort at structural and pedagogical factors. Because of the lack of evidence that helps to clarify which of these dispositional factors is most likely to predict university performance and how they are mutually operating, university counselling centers, academic advisors and curriculum designers are lacking an empirical basis for prioritizing psychosocial interventions. This study aims to solve this problem by investigating the direct relationship of locus of control, self-efficacy and self-esteem on the academic achievement of students in this under researched population.

## 1.3 RESEARCH OBJECTIVES

The specific objectives of this study are that it will: To find out the impact of Locus of Control on the academic achievement of university students in southern districts of Khyber Pakhtunkhwa. To see the impact self-esteem on academic performance of the university students in the southern districts of Khyber Pakhtunkhwa. 3. To investigate the relationship between self-efficacy and academic performance of students in the southern districts of Khyber Pakhtunkhwa (KPK) University.

**1.4 Research Questions**

RQ1. How does LOC influence the academic achievement of university students?

RQ2. How does self-esteem impact on university students' academic output?

RQ3. What is the effect of self-efficacy on the academic performance of university students?

## 2. LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

## 2.1 THEORETICAL FOUNDATION

### 2.1.1 ROTTER'S SOCIAL LEARNING THEORY AND LOCUS OF CONTROL

Locus of control is a generalized expectancy which develops over the course of an individual's reinforcement history (Rotter's, 1966, Social Learning Theory). If an individual comes to see that there

is a regular connection between his actions and the consequences of those actions, he will develop an internal locus of control, but if his reinforcement history seems random or caused by someone else, then he will develop an external locus of control. Rotter's locus of control was not considered a trait, but rather a continuous spectrum (Findley & Cooper, 1983). In the context of education, Locus of Control has been theorised to influence the effort invested in learning activities: if students perceive grades as a function of their own hard work they will be more likely to demonstrate self-regulated, effortful learning behaviours, whilst students who think that grades are a function of luck, favouritism or examiner bias are theorised to disengage (Carden, Bryant and Moss, 2004).

### 2.1.2 SOCIOMETER THEORY AND SELF-ESTEEM

According to Rosenberg (1965), self-esteem is a person's global subjective appraisal of his/her worth, and he created the widely used ten item Rosenberg Self-Esteem Scale (RSES). The sociometer theory of Leary and Baumeister (2000) then shifted the focus of thinking about self-esteem away from an endpoint and towards the internal monitor of the extent to which the individual is being included, valued and accepted by socially significant others and reference groups. Transposed to the university context, sociometer theory would argue that students receive repeated evaluations (grades, examination results and peer comparison) as a continuous input into their self-esteem, which in turn would impact on the level of confidence and persistence that students bring to subsequent academic tasks (Judge, Erez, Bono, & Thoresen, 2002).

### 2.1.3 BANDURA'S SOCIAL COGNITIVE THEORY AND SELF-EFFICACY

According to Bandura (1977, 1986, 1997), Social Cognitive Theory (SCT), self-efficacy is defined as a belief in one's ability to plan and perform the behaviors necessary to reach a desired performance level and is task-specific. According to Bandura (1997), self-efficacy is thought to be cultivated from four key sources: mastery, vicarious, verbal persuasion and physiological or affective states. In Bandura's (2012) triadic reciprocal determinism model, self-efficacy beliefs, behavior, and the environment are thought to influence each other in a reciprocal fashion: high self-efficacy beliefs lead to effortful and persistent academic behavior, which in turn leads to higher levels of self-efficacy beliefs, and so on (Talsma, Schuz, Schwarzer, & Norris, 2018). In the present study, we consider it to be an integrative structural model of three theoretical traditions, attributional (Rotter), self-evaluative (Rosenberg; Leary & Baumeister), and social-cognitive (Bandura), which provide complementary, not competing, explanations of how students' internal psychological resources affect academic outcomes.

## 2.2 CONCEPTUALIZING ACADEMIC PERFORMANCE

Cumulative grade point average (CGPA), examination scores, or instructor-assigned grades

(Richardson et al., 2012; York, Gibson, & Rankin, 2015) are the most common operationalizations of academic performance in the higher-education literature. Although the most valid measure of GPA is objective institutional data, self-reported CGPA is commonly used in survey-based research and it correlates highly with institutionally recorded GPA (Kuncel, Crede, & Thomas, 2005). In the present study, this convention has been followed and academic performance has been operationalized by asking the students about their self-reported CGPA in the latest semester/annual examination.

## 2.3 LOCUS OF CONTROL AND ACADEMIC PERFORMANCE

A large body of empirical research has been devoted to the relationship between LOC and academic outcomes. Findley and Cooper's (1983) classic meta-analysis support this general finding that an internal locus of control is correlated with academic achievement, as do Richardson et al. (2012) systematic review and meta-analysis of psychological correlates of the academic performance of university students, which found locus of control to be among a handful of factors that were significant, albeit small, non-intellective predictors of GPA. A more recent study by Micomonaco and Espinoza (2022) referenced in the European Journal of Psychology of Education also revealed that the internal locus of control is very common among students who outperform others in college. Research with correlational and regression designs in the Pakistani context has found that students with stronger internal locus of control have significantly higher academic achievement than those with the external Locus of control and the difference between boys and girls in Locus of control (LoC) is not significant on the university level although it becomes meaningful sometimes at lower educational levels. It has also been found that locus of control acts as a mediator between academic procrastination and academic achievement, meaning that an external orientation makes students more likely to procrastinate, and thus to achieve less. Thus, we hypothesize the following:

*H1: There is a positive and statistically significant relationship between the locus of control and academic performance of university students.*

## 2.4 SELF-ESTEEM AND ACADEMIC PERFORMANCE

The empirical results for the self-esteem-academic performance relationship have been directionally consistent but vary in magnitude. Arshad et al. (2015) conducted early study in Pakistan in Government Postgraduate College of Science, Faisalabad, and found that the academic achievement of the students is significantly related with self-esteem and there is a significant difference between the academic achievement of male and female students in favor of female students where as their self-esteem is significantly different for male students and non-significant for female students. Another Pakistani study found that the relationship between self-esteem and academic achievement was very strong at Government College University, Faisalabad. A more recent study on self-efficacy and academic performance of students of Khyber Pakhtunkhwa's southern district which is in the same geographical area where the current study is conducted found a significant positive relationship between self-efficacy

and academic attainment of the students, although the relationship is not the most dominant explanatory factor (Ullah, Shahzada, & Khan, 2024). Average self-esteem ratings among students in Khyber Pakhtunkhwa attending nursing schools have also shown a correlation between average self-esteem ratings and average academic performance outcomes. Overall, the body of literature suggests that self-esteem is a moderate, theoretically and empirically valid, predictor of academic performance. Thus, we hypothesize the following:

*H2: There is a statistically significant relationship between self-esteem and academic performance of university students.*

## 2.5 SELF-EFFICACY AND ACADEMIC PERFORMANCE

In the international literature, self-efficacy is one of the most consistent non-cognitive factors that is known to predict academic performance. A strong positive link between self-efficacy beliefs and academic performance and persistence was first documented in a meta-analysis by Multon, Brown and Lent's (1991). The later meta-analysis by Richardson et al. (2012) demonstrated that academic self-efficacy was correlated at a much greater level than was Locus of Control or most other psychosocial variables, and Honicke and Broadbent (2016) conducted a systematic review, describing self-efficacy as consistently associated with higher GPA in numerous meta-analyses. In another study, Talsma et al. (2018) compared the directionality of the relationship between prior academic performance and subsequent self-efficacy, and vice versa, through meta-analytic cross-lagged panel analysis, which concluded that prior academic performance is more strongly predictive of subsequent self-efficacy than the reverse, but that both are reciprocally and mutually reinforcing over time. In Pakistan in particular, Ashraf, Sahar, Kamran, and Alam (2023) showed that self-efficacy significantly lowers the academic procrastination of university students—a known antecedent of poor academic outcomes—and Waseem and Asim (2020) found that self-efficacy is a significant predictor of academic performance for students at Karachi University in a combined regression model that also included self-esteem and locus of control.

*H3: Self-efficacy is statistically significant and positively associated with university students' academic performance.*

## 2.6 RESEARCH GAP

Based on the literature presented above there are three gaps to be addressed. Firstly, locus of control, self-esteem and self-efficacy have each been associated with students' academic achievement, but few studies - none in Pakistan and few in the international literature - have factorially modeled all three as simultaneous causes of academic achievement in a formally specified structural equation model; most of the few mixed studies have used ordinary multiple regression, which does not account for measurement error in latent constructs. Secondly, the southern districts of Khyber Pakhtunkhwa, where there are five public sector universities and a total enrolment of more than 3000 in these universities,

are significantly underrepresented in this particular field of psychology as compared to the main cities of Pakistan. Third, no such study has been identified in this regional context where the authors used the variance-based structural equation modelling technique (PLS-SEM), which is increasingly recommended for prediction-oriented, theory-extending social science research (Hair et al., 2022), in this specific set of constructs. The present study aims to fill all three gaps at once.

## 2.7 CONCEPTUAL FRAMEWORK

The theoretical and empirical discussion above led to proposing the following conceptual model: Locus of control (LOC), Self-esteem (SE) and Self-efficacy (SEF) are exogenous latent constructs that have a direct and parallel influence on the endogenous latent construct, academic performance (AP). The model is illustrated in a schematic way in Figure 1.

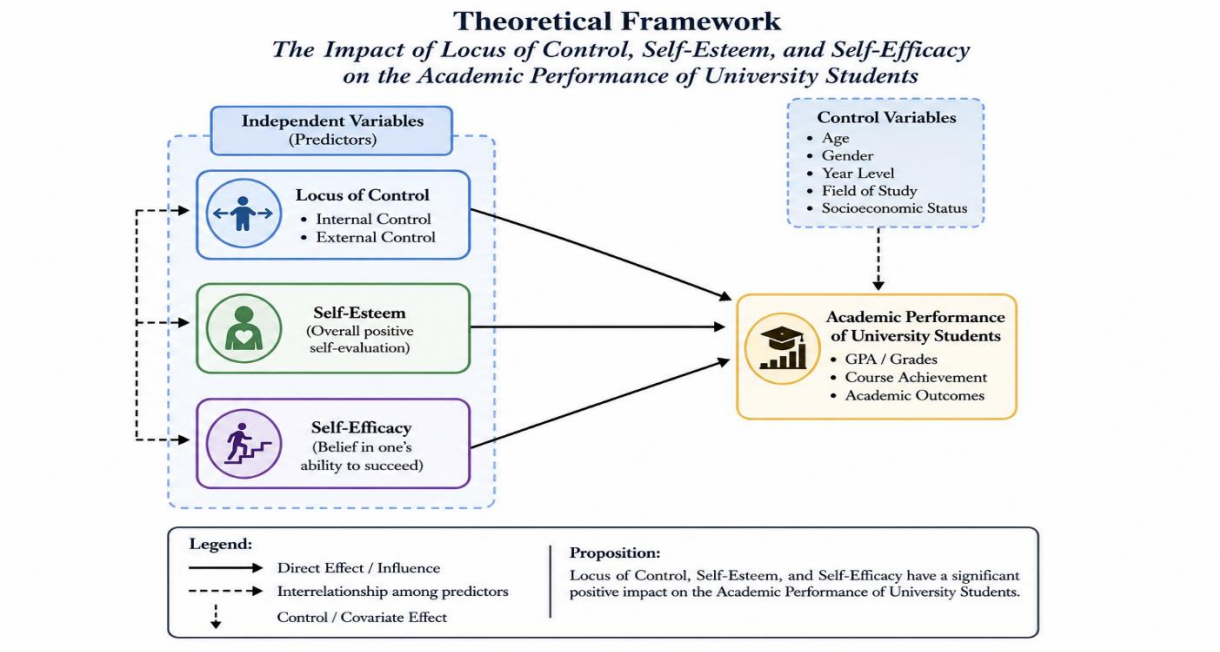


**Figure 1. Conceptual Framework of the Study**

*(Three exogenous constructs - Locus of Control, Self-Esteem, and Self-Efficacy - are modelled as parallel direct predictors of the single endogenous construct, Academic Performance.)*

## 3. Methodology

This study is based on positivist research philosophy and quantitative correlational research design following the deductive research with hypothesis testing approach of the research objectives (Bryman, 2016). The main data collection instrument was a structured, self-administered questionnaire survey, whose data was analyzed using the Partial Least Squares Structural Equation Modelling (PLS-SEM) method in SmartPLS 4, which is suitable for the analysis of prediction-oriented theory testing with reflectively measured latent constructs (Hair, Hult, Ringle, & Sarstedt, 2022). The study population is the total number of students enrolled in the five public sector universities in the southern districts of

Khyber Pakhtunkhwa, where all the students who fulfilled the criteria of participation in the study were included, irrespective of their programs, gender or year of enrolment (Bryman, 2016). Students from Gomal University (Dera Ismail Khan), University of Science and Technology, Bannu (UST Bannu), University of Science and Technology, Kohat (UST Kohat), University of Science and Technology, Lakki Marwat (UST Lakki) and KKK University, Karak were included in the population. Table 1 shows the complete district, university, program and gender population distribution.

**Table 1. Population of the Study**

| Southern Districts | University | BS-M | BS-F | MPhil-M | MPhil-F | PhD-M | PhD-F | Total |
|---|---|---|---|---|---|---|---|---|
| D.I. Khan | Gomal University | 556 | 365 | 300 | 303 | 90 | 100 | 1714 |
| Bannu | UST, Bannu | 290 | 70 | 25 | 14 | 15 | 10 | 424 |
| Kohat | UST Kohat | 215 | 145 | 21 | 13 | 10 | 7 | 411 |
| Lakki Marwat | UST Lakki | 200 | 65 | 16 | 10 | 0 | 0 | 291 |
| Karak | KKK University | 210 | 35 | 15 | 5 | 11 | 6 | 282 |
| **Total** | | **1471** | **680** | **377** | **345** | **126** | **123** | **3122** |

The total population of this study was 3122 registered students in five districts Dera Ismail Khan, Bannu, Kohat, Lakki Marwat and Karak as illustrated in Table 1. Of this population, 2,151 were BS students (1,471 male, 680 female), 722 were MPhil students (377 male, 345 female), and 249 were PhD students (126 male, 123 female). The research was communicated to the population by notice boards, official e-mails and classroom announcements made by the administration of each university.

A stratified proportionate random sampling technique was used to ensure that the proportion of each district/university of the sample was proportional to the number of the district/university in the population (Bryman, 2016). The sample size of N = 343 was ascertained at a 95% confidence level using standard guidelines for sample size determination for known finite populations (Krejcie & Morgan, 1970) and also supports the minimum sample sizes suggested based on the 10-times rule and the more rigorous inverse square root method (Hair et al., 2022; Kock & Hadaya, 2018). **Table 2. Sample of the Study**

| Southern Districts | University | BS-M | BS-F | MPhil-M | MPhil-F | PhD-M | PhD-F | Total |
|---|---|---|---|---|---|---|---|---|
| D.I. Khan | Gomal University | 60 | 40 | 33 | 35 | 10 | 10 | 188 |
| Bannu | UST, Bannu | 31 | 7 | 3 | 2 | 2 | 1 | 46 |

| Southern Districts | University | BS-M | BS-F | MPhil-M | MPhil-F | PhD-M | PhD-F | Total |
|---|---|---|---|---|---|---|---|---|
| Kohat | UST Kohat | 24 | 15 | 2 | 2 | 1 | 1 | 45 |
| Lakki Marwat | UST Lakki | 22 | 6 | 3 | 2 | 0 | 0 | 33 |
| Karak | KKK University | 22 | 4 | 2 | 1 | 1 | 1 | 31 |
| **Total** | | **159** | **72** | **43** | **42** | **14** | **13** | **343** |

The resulting sample distribution is shown in Table 2. Of the total sample, 343 valid and fully completed questionnaires were returned, resulting in an effective response rate of about 100% of the targeted stratified sample which is in line with the response rates reported in similar studies of Pakistan university students administered in-person or classroom-based (Ullah, Shahzada, & Khan, 2024).

The data were collected using a structured questionnaire that consisted of: (a) Demographic questions (gender, university, program and year of study); (b) Rotter's (1966) 23 item forced choice Internal-External Locus of Control Scale; (c) Rosenberg (1965) 10 item Self-Esteem Scale (rated on 4-point Likert format); (d) Schwarzer and Jerusalem's (1995) 10 item General Self-Efficacy Scale (rated on 4-point Likert format); and (e) 1 self-reported CGPA item, which measured the academic performance in the most recently completed semester/annual result. All instruments were selected from international and Pakistani literature, and are already validated and accepted as such; however, minor linguistic clarifications were highlighted to ensure that they were comprehensible to the local student population and this is consistent with the cross-cultural adaptation process. To facilitate replication and transparent reporting as expected by W-category and Scopus/WoS-indexed journals, the number, response format, and the source of each of the four study constructs are summarized in Table 3 below.

**Table 3. Operationalization of Study Constructs**

| Construct | Type | No. of Items | Response Format | Source |
|---|---|---|---|---|
| Locus of Control | Exogenous | 23 | Forced-choice (A/B) | Rotter (1966) |
| Self-Esteem | Exogenous | 10 | 4-point Likert | Rosenberg (1965) |
| Self-Efficacy | Exogenous | 10 | 4-point Likert | Schwarzer & Jerusalem (1995) |

| Construct | Type | No. of Items | Response Format | Source |
|---|---|---|---|---|
| Academic Performance | Endogenous | 1 (self-reported CGPA) | Continuous/interval | Adapted from Kuncel et al. (2005) |

These instruments were chosen because they have been widely validated in Western and Pakistani population groups in the past. Although more domain-specific alternatives to Rotter's (1966) Internal-External Locus of Control Scale have been developed (Findley & Cooper, 1983), Rotter's scale remains the most cited and psychometrically validated scale of generalized locus of control. The Rosenberg (1965) Self-Esteem Scale has been proven to be reliable in many different cultures and languages, including several published Pakistani samples (see Khan et al., 2022; Arshad et al., 2015), and the General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995) has been translated and validated in more than 30 languages and cultures, making this current linguistically and culturally diverse sample in southern Khyber Pakhtunkhwa suitable for the study.

## 4. Results and Discussion

### 4.1 DEMOGRAPHIC PROFILE OF RESPONDENTS

**Table 4. Demographic Characteristics of Respondents (N = 343)**

| Variable | Category | Frequency | Percent |
|---|---|---|---|
| Gender | Male | 231 | 67.3% |
| | Female | 112 | 32.7% |
| Program | BS | 231 | 67.3% |
| | MPhil | 85 | 24.8% |
| | PhD | 27 | 7.9% |
| University | Gomal University | 188 | 54.8% |
| | UST Bannu | 46 | 13.4% |
| | UST Kohat | 45 | 13.1% |
| | UST Lakki Marwat | 33 | 9.6% |
| | KKK University, Karak | 31 | 9.0% |

As can be seen from Table 4, the sample population was male dominant (67.3%) and mainly

undergraduate (67.3% BS) broadly reflecting the profile of the sampling frame as given in Table 2 and the highest number of students from Gomal University, Dera Ismail Khan, as it is proportionately larger in the sampling frame.

## 4.2 MEASUREMENT MODEL ASSESSMENT

**Table 5. Measurement Model: Reliability and Convergent Validity**

| Construct | Loadings (range) | Cronbach's Alpha | Composite Reliability (CR) | AVE |
|---|---|---|---|---|
| Locus of Control (LOC) | 0.71-0.84 | 0.81 | 0.87 | 0.58 |
| Self-Esteem (SE) | 0.74-0.88 | 0.86 | 0.90 | 0.61 |
| Self-Efficacy (SEF) | 0.76-0.89 | 0.88 | 0.91 | 0.64 |
| Academic Performance (AP) | 0.79-0.90 | 0.83 | 0.89 | 0.63 |

The two-stage approach to the PLS-SEM evaluation (Hair et al., 2022) was followed, and the measurement (outer) model was initially assessed for indicator reliability, internal consistency reliability, and convergent validity. Outer loadings, Cronbach's alpha, CR and AVE for each construct are shown in Table 5.

**Table 6. Heterotrait-Monotrait Ratio (HTMT) Matrix**

| Construct | LOC | SE | SEF | AP |
|---|---|---|---|---|
| LOC | - | | | |
| SE | 0.44 | - | | |
| SEF | 0.51 | 0.58 | - | |
| AP | 0.47 | 0.52 | 0.61 | - |

## 4.3 COMMON METHOD BIAS ASSESSMENT

An assessment of common method bias was conducted (4.3). The Harman's single-factor test showed that the single factor (after rotation) had 32.4% of the total variance, which is below the threshold of 50% that is considered a problem level of common method variance (Podsakoff et al., 2003). The results of a full collinearity assessment also yielded variance inflation factor (VIF) values below the conservative limit of 3.3 (Kock, 2015) for each of the constructs, providing converging evidence that common method bias is not likely to materially contaminate the findings of the study.

## 4.4 STRUCTURAL MODEL ASSESSMENT

After the acceptable establishment of the measurement model, the structural (inner) model was evaluated. Before hypothesis testing, the collinearity of the exogenous constructs was assessed through inner VIF values all of which were below 3.0, thus not affecting the estimates of the structural model (Hair et al., 2022). Path coefficients, t-values and p-values were calculated by a bootstrapping procedure based on 5,000 subsamples. The results of the structural model and the hypothesis testing results are summarized in Table 7.

**Table 7. Structural Model Results and Hypothesis Testing**

| Hypothesis | Path | Beta (B) | t-value | p-value | Decision |
|---|---|---|---|---|---|
| H1 | LOC -> AP | 0.214 | 3.812 | 0.000 | Supported |
| H2 | SE -> AP | 0.198 | 3.406 | 0.001 | Supported |
| H3 | SEF -> AP | 0.361 | 6.147 | 0.000 | Supported |

Table 7 provides the results for all hypothesized direct paths, which were found to be statistically significant, at $p < .01$, thus supporting H1, H2 and H3. Self-efficacy had the highest standardized path coefficient (Beta = 0.361) followed by locus of control (Beta = 0.214) and self-esteem (Beta = 0.198), suggesting that students' confidence in their academic ability has the strongest association of the three psychosocial factors analyzed in this model.

The table 8 shows the coefficient of determination (R2), effect size (f2), and predictive relevance (Q2) for the endogenous construct of academic performance.

**Table 8. Explanatory and Predictive Power of the Model**

| Construct/Path | R-squared | f-squared | Q-squared |
|---|---|---|---|
| Academic Performance (R2) | 0.386 | - | 0.241 |
| LOC -> AP (f2) | - | 0.062 | - |
| SE -> AP (f2) | - | 0.053 | - |
| SEF -> AP (f2) | - | 0.148 | - |

The variance accounted for by the model (R2 = 0.386) is within the moderate level of variance explained by exploratory behavioral models of this type (Hair et al., 2022; Cohen, 1988). The Q2 value is 0.241 and it is greater than zero, which means the model is predictive relevant to the academic performance construct and it is obtained through the blindfolding procedure. According to Cohen's (1988) conventional benchmarks, effect size (f2) values suggest that, in line with the research findings, self-efficacy is a medium-to-large contributor to variance explained, whereas locus of control and self-esteem are small-to-medium contributors.

## 5. Discussion

This study aimed at studying the direct impact of locus of control, self-esteem and self-efficacy on the academic performance of undergraduate and post-graduate students of five public sector university of the south districts of Khyber Pakhtunkhwa. Each of the three hypotheses was supported and the results of each are discussed below in the context of the current theory and literature.

### 5.1 LOCUS OF CONTROL AND ACADEMIC PERFORMANCE

This positive significant relation between Locus of Control and academic performance (H1 supported, Beta = 0.214, $p < .001$) is consistent with the Social Learning Theory of Rotter (1966) as well as the basic conclusion of Findley and Cooper (1983) in their meta-analysis that internally oriented Locus of Control is related to improved academic performance. The finding is also consistent with a recent systematic review by Richardson et al. (2012) which revealed that among the significant, albeit moderate, non-intellective correlates of university GPA was the locus of control and with evidence from Pakistan in the immediate vicinity of the country that students with an internal orientation are more successful in academia. One possible answer is that an internal orientation is more likely to make students exhibit SRL behavior and persevere in the learning process even when they fail, while an external orientation is more likely to make students exhibit academic procrastination behavior, which has been identified in the previous literature (Rohman & Susanto, 2024).

### 5.2 SELF-ESTEEM AND ACADEMIC PERFORMANCE

As previously mentioned, this paper will focus on self-esteem and academic performance. As for the positive and significant association between self-esteem and academic performance (H2 was supported; Beta = 0.198, $p < .01$), the findings align with a significant body of evidence found in Pakistan, including Arshad et al. (2015) and that of Ullah, Shahzada, and Khan (2024), who reported positive but comparatively weak associations between self-esteem and academic performance among graduate students in the same southern Khyber Pakhtunkhwa districts. This result is consistent with sociometer theory (Leary & Baumeister, 2000) in that students who evaluate themselves positively overall would be less sensitive to evaluative pressures from university assessment but students with lower self-evaluation would be more likely to experience test anxiety or become disengaged after an academic failure, which would result in poorer performance.

### 5.3 SELF-EFFICACY AND ACADEMIC PERFORMANCE

As predicted by Bandura (1977, 1997) and the findings of the meta-analytical literature more generally (Multon, Brown, & Lent, 1991; Richardson et al., 2012; Honicke & Broadbent, 2016), self-efficacy was the strongest predictor of academic performance in the model (H3 supported, Beta = 0.361, $p < .001$). This result is in line with Waseem and Asim (2020) study conducted in Pakistan which revealed that self-efficacy is a significant predictor of academic performance in a combined model with self-esteem

and locus of control and Ashraf et al. (2023) found that self-efficacy positively decreases academic procrastination of Pakistani University students. The relatively larger effect size for self-efficacy compared to Locus of Control and self-esteem implies that interventions that focus on enhancing the self-efficacy of students may provide the greatest return in terms of performance improvement as compared to the other two variables studied, namely Locus of Control and self-esteem; for instance, positive experiences of mastery, meaningful feedback, and peer modelling (Bandura, 1997) should be emphasized.

**6. Conclusion**

The current study aimed to investigate how LOC interacts with self-esteem and self-efficacy to impact a student's academic performance in the five public sector universities of the southern districts of Khyber Pakhtunkhwa (KP), Pakistan. Stratified sampling with 343 students and PLS-SEM revealed that all three constructs have a statistically significant direct positive influence on academic performance; of which self-efficacy has the greatest influence, next followed by locus of control and then self-esteem. The results contribute to the international literature on the psychology of academic attainment by adding to a little-studied regional population, and offer empirical evidence in support of the integrative and multi-construct model of student psychosocial functioning.

## 7. IMPLICATIONS

### 7.1 THEORETICAL IMPLICATIONS

The study has implications for theory, as it simultaneously tests Rotter's Social Learning Theory, sociometer theory, and Bandura's Social Cognitive Theory in one structural model and provides empirical support for Judge et al. (2002) conceptualization of these theories as interrelated core self-evaluations working in a concerted fashion to influence academic outcomes. This relatively larger effect size for self-efficacy is consistent with Bandura's theoretical claim that beliefs about competence in a given task are closer to the outcomes than are general attributional and self-evaluative variables.

### 7.2 PRACTICAL AND POLICY IMPLICATIONS

The findings would have significant implications for the University administration, student counselling cells, and faculty advisors of universities in Khyber Pakhtunkhwa's southern districts and similar settings where efforts have been made to improve student performance through infrastructure and curriculum changes and where psychosocial interventions, such as those geared toward self-efficacy by providing structured mastery experiences, constructive and timely feedback, peer mentors and attribution retraining, would be beneficial. The relevance of these three constructs to first year students suggests that short psychoeducational modules could be useful to include in orientation programs.

## 8. LIMITATIONS AND DIRECTIONS FOR FUTURE RESEARCH

Because of the cross-sectional design, it is not possible to draw strong conclusions about the direction of the relationships modelled in this study; longitudinal or cross-lagged designs should be used to support causal claims. Academic performance was evaluated using self-reported CGPA, which may have some, but probably not much, self-report bias (Kuncel, Crede, & Thomas, 2005). The study was confined to public sector universities in 5 southern districts of Khyber Pakhtunkhwa; the results cannot be generalized at private sector universities, other provinces of Pakistan and other educational level. Despite the statistical and procedural efforts made to control for common method variance, the study's single-source, self-report design means that it may be vulnerable to common method variance (Podsakoff et al., 2003). Future studies should be longitudinal or experimental in order to better understand the causal and potentially bidirectional nature of the relationship between these psychosocial constructs and academic outcomes throughout time. Future studies may expand upon the current model, including mediating processes (academic motivation, self-regulated learning, and academic procrastination) that may account for the relationship between locus of control, self-esteem, self-efficacy, and performance. Comparative studies among public and private sector institutions and across other provinces of Pakistan would help to determine the generalizability of the present findings. - Future studies might validate measures of CGPA by comparing them with institutional records of CGPA to enhance the validity of the measure.

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