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BEYOND THE INTRINSIC–EXTRINSIC DICHOTOMY: MOTIVATIONAL PREDICTORS OF ACADEMIC PERFORMANCE IN PAKISTAN'S COLLECTIVIST HIGHER EDUCATION CONTEXT

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ABSTRACT

This study examines the influence of intrinsic and extrinsic motivation on academic performance among university students in southern Punjab, Pakistan. Using a sequential explanatory mixed-methods design, data were collected from 300 students across three universities, followed by interviews with 12 participants. Quantitative findings revealed that intrinsic motivation had a positive but non-significant relationship with academic performance, while extrinsic motivation showed a significant positive association and emerged as the stronger predictor of CGPA. Qualitative analysis identified key motivational factors, including personal interest, career aspirations, family expectations, institutional support, feedback quality, and social influences. The findings suggest that intrinsic and extrinsic motivation function as complementary rather than opposing forces within Pakistan's collectivist educational context. The study concludes that culturally embedded external motivations, particularly family and career-related expectations, play an important role in shaping academic success and should be considered when designing educational policies and student support strategies.

Keywords: *student motivation, intrinsic motivation, extrinsic motivation, academic performance, self-determination theory, higher education, Pakistan*

1. INTRODUCTION

Pakistan's higher education sector is expanding rapidly against a backdrop of significant resource constraints. The country allocates only 1.9% of GDP to education, substantially below UNESCO's recommended 4–6% threshold and well behind regional counterparts such as India (4.6%) and Bangladesh (3.5%) (Global Education Monitoring Report Team, 2023). Approximately 42% of universities report below-standard facilities, student-teacher ratios stand at 28:1 against an international benchmark of 15:1, and classrooms routinely operate at 140–160% of intended capacity (Bashir et al., 2022; Higher Education Commission Pakistan, 2024). These structural conditions systematically undermine the psychological needs of autonomy, competence, and relatedness that Self-Determination Theory (SDT) identifies as foundational for intrinsic motivation (Deci & Ryan, 2000).

Within this challenging environment, student motivation emerges as a particularly consequential determinant of academic outcomes. Research consistently demonstrates that motivated learners exhibit greater persistence,

deeper engagement, and higher achievement (Kusurkar et al., 2013; Richardson et al., 2012). SDT distinguishes intrinsic motivation, driven by inherent interest and satisfaction, from extrinsic motivation, governed by external rewards, expectations, and instrumental outcomes (Deci & Ryan, 2000). The theory traditionally positions intrinsic motivation as the superior driver of performance; however, this hierarchy has been questioned in collectivist societies where family obligations and social expectations are deeply internalized as personal values (Chirkov et al., 2003; Jang et al., 2009).

This theoretical hierarchy, while robustly supported in Western educational contexts, requires careful consideration when applied to collectivist societies where family obligations, cultural norms, and social expectations profoundly shape individual behavior (Chirkov et al., 2003; Jang et al., 2009). In Pakistan's socio-cultural environment, students must simultaneously pursue personal academic goals and fulfill family-defined educational responsibilities, creating a dual pressure that complicates straightforward application of the intrinsic-extrinsic distinction. Family expectations regarding career trajectories, marriage prospects, and social standing are not merely external pressures but are often deeply internalized as personal values, blurring the boundary between autonomous and controlled motivation that SDT posits as theoretically distinct.

Despite the growing literature on student motivation in Pakistan, several questions remain insufficiently examined. Existing studies are concentrated in metropolitan centers such as Lahore and Islamabad, leaving southern Punjab, home to institutions serving distinctively rural, low-income, and first-generation student populations, virtually absent from the peer-reviewed record. Moreover, prior studies have relied predominantly on single-method designs, limiting their capacity to both identify motivational patterns and explain the mechanisms underlying them.

The empirical literature on motivation and academic performance in Pakistani higher education presents a mixed and methodologically constrained picture. Afzal et al. (2010) reported an exceptionally strong relationship between motivation and GPA, explaining approximately 80% of variance, though subsequent scholars have questioned whether sampling biases and measurement limitations may inflate these estimates (Qadir et al., 2024). More recent studies confirm the general association between motivation and achievement in both digital and traditional learning modes (Ait Ali et al., 2025; SHAH et al., 2023), yet the relative contributions of intrinsic and extrinsic motivation, and their interaction with socio-cultural and institutional factors, remain insufficiently examined. Critically, existing research has concentrated disproportionately in metropolitan centers such as Lahore, Karachi, and Islamabad, leaving semi-urban and rural regions of southern Punjab virtually absent from the scholarly record despite serving substantial and demographically distinct student populations.

This geographic concentration represents more than a coverage gap; it constitutes a theoretical blind spot. Southern Punjab's institutions enroll students shaped by rural-to-urban migration, conservative gender norms, acute resource constraints, and extended family structures that differ markedly from the urban middle-class contexts dominating existing research. Without evidence from these underrepresented populations, SDT's claims to cross-cultural validity remain empirically incomplete and educational policies risk being designed around unrepresentative motivational assumptions. The present study contributes evidence from this underrepresented region through a sequential explanatory mixed-methods investigation of 300 students across three universities in Rahim Yar Khan and Bahawalpur, supplemented by in-depth interviews with 12 purposively selected participants. Grounded in SDT, this study addresses three research questions:

RQ1: What is the relationship between intrinsic motivation and academic performance among university students in southern Punjab, Pakistan?

RQ2: What is the relationship between extrinsic motivation and academic performance in this context?

RQ3: Which motivational orientation, intrinsic or extrinsic, is the stronger predictor of academic

performance, and how do qualitative accounts explain this pattern?

Drawing on SDT's theoretical hierarchy and its recent culturally contextualized refinements, three hypotheses guided this investigation:

H1: Intrinsic motivation is positively associated with academic performance (CGPA), consistent with SDT's proposition that autonomous motivation predicts superior outcomes.

H2: Extrinsic motivation is positively associated with academic performance, reflecting the pervasive internalization of family and career expectations in this collectivist context.

H3: Intrinsic motivation is a stronger predictor of CGPA than extrinsic motivation, testing the classical SDT hierarchy against the alternative possibility that culturally internalized extrinsic motivation may demonstrate comparable or superior predictive power in this setting.

By integrating quantitative statistical analysis with qualitative thematic investigation, the study aims to produce both generalizable patterns and contextually rich explanations that advance theoretical understanding and inform practical intervention.

The significance of this investigation extends beyond academic contribution. With higher education enrollment expanding at 12% annually and dropout rates approaching 40% in some institutions, understanding the motivational dynamics that sustain student engagement is urgent for Pakistan's educational planning and national development (Gallup Pakistan, 2024). The findings are intended to provide actionable guidance for educators seeking to design more engaging pedagogical approaches, administrators aiming to create supportive institutional environments, and policymakers crafting evidence-based strategies for educational quality improvement. In doing so, the study contributes to the broader project of building higher education systems that are not merely expanded in scale but genuinely responsive to the diverse motivational needs of their students.

2. LITERATURE REVIEW

2.1 Theoretical Framework: Self-Determination Theory

Self-Determination Theory provides the primary conceptual foundation for this investigation. Developed by Deci and Ryan (2000), SDT conceptualizes motivation not as a unitary construct but as a continuum ranging from amotivation through various forms of extrinsic motivation to fully autonomous intrinsic motivation. This continuum reflects differing degrees of internalization, the process by which externally regulated behaviors become integrated into one's sense of self. At the controlled end, external regulation involves behavior motivated entirely by separable outcomes such as grades, rewards, or avoidance of punishment. Moving toward greater autonomy, introjected regulation involves internal pressure driven by guilt, anxiety, or ego involvement; identified regulation entails conscious valuing of behavioral outcomes as personally important; and integrated regulation represents full coherence between external demands and core personal values. Intrinsic motivation, at the autonomous pole, involves engagement in activities for their inherent satisfaction rather than for any separable consequence.

A central proposition of SDT is that the quality of motivation depends on the satisfaction of three basic psychological needs: autonomy, the experience of behavior as self-endorsed and volitional; competence, the sense of effectiveness and mastery in one's activities; and relatedness, the feeling of connection and belonging with others (Ryan & Deci, 2024). Educational environments that support these needs foster more autonomous forms of motivation, which in turn predict deeper learning, greater creativity, enhanced well-being, and superior academic performance. Conversely, controlling environments that neglect these needs may produce compliant but psychologically costly behavior, potentially undermining intrinsic interest and sustainable engagement.

This theoretical framework has been extensively validated across Western educational contexts, where empirical studies consistently demonstrate that autonomous motivation predicts superior

academic outcomes compared to controlled forms (Kusurkar et al., 2013; Wilkesmann et al., 2021). However, the cross-cultural generalizability of SDT's specific predictions, particularly the assumed superiority of intrinsic over extrinsic motivation, has been questioned in collectivist cultural settings where external expectations may be more readily internalized and where the boundary between personal and social goals is less sharply demarcated (Chirkov et al., 2003; Jang et al., 2009). This theoretical tension motivates the present investigation, which examines whether SDT's motivational hierarchy holds in Pakistan's collectivist higher education environment or whether alternative patterns emerge.

2.2 Global Evidence on Motivation and Academic Performance

International research consistently affirms motivation's pivotal role in academic achievement, though effect sizes vary substantially across contexts and study designs. Richardson et al. (2012) conducted a comprehensive meta-analysis finding that motivation accounts for approximately 20% to 65% of variance in student achievement across different countries and educational systems, with correlations ranging from r = .20 to r = .65 depending on measurement approaches and institutional conditions. This considerable range suggests that the motivation-performance relationship is not invariant but is moderated by contextual factors including pedagogical practices, assessment systems, and cultural norms.

In European contexts, Wilkesmann et al. (2021) demonstrated that German university students who perceived greater personal meaning in their studies achieved measurably higher academic results, supporting SDT's prediction that autonomous motivation enhances performance. Kusurkar et al. (2013), in a Dutch medical school setting, found that students with higher autonomous motivation demonstrated superior examination performance and stronger study dedication, effects mediated by adoption of deep learning strategies rather than surface approaches. González-Arias et al. (2025), in a multi-university European study, confirmed that intrinsic motivation consistently showed higher standardized beta values than extrinsic motivation when predicting academic success, reinforcing the theoretical hierarchy across diverse institutional settings.

Research in Middle Eastern and Asian contexts has produced more nuanced findings. Abdulrahman et al. (2023) found among medical students in Riyadh that motivated students invested more effort and achieved higher cumulative grade point averages, though the study did not systematically disaggregate intrinsic and extrinsic contributions. Jang et al. (2009) demonstrated in South Korean educational settings that autonomy-supportive teaching improved intrinsic motivation and learning outcomes even within a collectivist cultural framework, suggesting that SDT's basic needs are culturally universal even if their specific manifestations vary. These studies collectively indicate that while motivation universally predicts academic performance, the relative influence of intrinsic versus extrinsic forms may be culturally contingent.

The mode of educational delivery also moderates motivational effects. Walker et al. (2024) found through meta-analysis that motivation's influence on academic outcomes was stronger in traditional face-to-face environments (r ≈ .45) compared to online and blended learning settings (r ≈ .28), suggesting that physical presence and direct social interaction amplify motivation's academic benefits. This finding has particular relevance for Pakistan's higher education system, where traditional classroom instruction remains dominant despite growing interest in digital expansion.

2.3 Motivation and Academic Performance in South Asian Contexts

Research in South Asian higher education reveals patterns that both confirm and complicate SDT's theoretical predictions. In Sri Lanka, Delpitiya et al. (2023) found that parental involvement and demographic factors significantly influenced undergraduate academic success, with familial expectations operating as powerful motivational forces that were difficult to distinguish from personal academic goals. The authors noted that

when parental expectations were near-universally high, family-related extrinsic pressure lost statistical power to discriminate between students with different academic outcomes, a pattern suggesting ceiling effects in extrinsic motivation measurement within collectivist contexts.

In Saudi Arabia, Alharbi et al. (2024) documented that students in family-centered cultures often experienced high levels of both intrinsic and extrinsic motivation simultaneously, with external expectations becoming so deeply internalized that the conventional distinction between personal and socially driven goals became analytically problematic. This finding aligns with SDT's more recent theoretical developments recognizing that identified and integrated forms of extrinsic motivation may function similarly to intrinsic motivation when external goals align with personal values (González-Arias et al., 2025; Reeve, 2024).

Within Pakistan specifically, the empirical base remains limited and geographically concentrated. Afzal et al. (2010) provided foundational evidence that both intrinsic and extrinsic motivation substantially predicted academic performance among 342 university students, explaining approximately 80% of GPA variance. However, this exceptionally high explanatory power has been questioned by subsequent scholars who note potential methodological limitations including convenience sampling, single-institution designs, and possible common method bias (Naz et al., 2020; Qadir et al., 2024). Naz et al. (2020) identified notable gender differences in motivation and academic achievement among university students in Khyber Pakhtunkhwa, with female students demonstrating higher motivation and better outcomes, patterns attributed to complex interactions between supportive familial environments and societal expectations. Nasir et al. (2025) further highlighted the moderating role of economic constraints and resource access on academic effectiveness, emphasizing that motivational process cannot be understood independently of structural conditions.

These Pakistani studies share a common limitation: they are predominantly situated in metropolitan or northern regions, with southern Punjab remaining virtually unrepresented in the peer-reviewed literature. This geographic gap is significant because southern Punjab's higher education institutions serve student populations with distinctive demographic profiles, including higher proportions of rural-origin students, greater financial constraints, more conservative gender norms, and different patterns of family structure and educational aspiration. The present study addresses this gap by examining motivation and academic performance in this underrepresented region.

2.4 The Intrinsic-Extrinsic Distinction in Collectivist Educational Cultures

The theoretical distinction between intrinsic and extrinsic motivation, while analytically useful, becomes empirically complex in collectivist societies where individual goals are deeply embedded in social relationships. Chirkov et al. (2003) demonstrated that autonomy, as conceptualized in SDT, is not equivalent to individualism or independence; rather, individuals can experience autonomous motivation even when pursuing culturally prescribed goals, provided they have internalized these goals as personally meaningful. This theoretical refinement suggests that the intrinsic-extrinsic dichotomy may be less absolute in collectivist contexts than in Western individualist settings.

Recent SDT scholarship has increasingly emphasized the continuum nature of motivation rather than treating intrinsic and extrinsic forms as mutually exclusive categories. González-Arias et al. (2025) found in European higher education that both motivational orientations co-existed and positively correlated, with students simultaneously driven by personal interest and external requirements. Reeve (2024) argued that in contemporary educational environments, the classical dichotomy between autonomous and controlled motivation requires supplementation with recognition of integrated motivational orientations where personal and social goals have become fused.

This theoretical evolution has direct implications for the present study: if Pakistani students experience academic obligations as personally

endorsed values rather than external impositions, the classical intrinsic–extrinsic hierarchy may not hold, and extrinsic motivation may demonstrate comparable or superior predictive power, a hypothesis the quantitative results ultimately support. In a context where academic success is closely tied to family honor, career prospects that support extended family obligations and social recognition within tightly knit communities, extrinsic motivators such as grades and parental approval may not function as purely external controls but as personally endorsed values. The qualitative component of the present study is specifically designed to investigate this possibility, examining whether students experience intrinsic and extrinsic motivation as distinct forces or as integrated aspects of a unified motivational orientation.

2.5 Institutional and Pedagogical Factors Shaping Motivation

Beyond individual motivational orientations, the institutional environment plays a critical role in shaping how motivation translates into academic performance. SDT emphasizes that educational contexts supporting autonomy, competence, and relatedness foster more autonomous motivation and better outcomes, while controlling or neglectful environments undermine these processes (Ryan & Deci, 2024). In Pakistan's resource-constrained higher education system, institutional factors including large class sizes, inadequate facilities, traditional lecture-based pedagogy, and limited feedback mechanisms may systematically frustrate the basic psychological needs that sustain intrinsic motivation.

Khan et al. (2024) documented that traditional pedagogical approaches emphasizing rote memorization over critical thinking dominate Pakistani higher education, creating learning environments that fail to activate the autonomy and competence needs central to intrinsic motivation. SHAH et al. (2023) found that effective teaching quality, particularly instructors' ability to create engaging and supportive learning environments, significantly influenced student motivation and outcomes in Pakistani higher education, with technology-enhanced instruction showing promise but requiring substantial faculty development. These findings suggest that the motivation-performance relationship cannot be understood independently of the pedagogical and institutional conditions that mediate it.

The role of feedback in sustaining motivation has received particular attention. Constructive, specific, and timely feedback serves the competence need by confirming that effort produces mastery, thereby strengthening intrinsic motivation and academic engagement (Reeve & Cheon, 2021). Conversely, the absence of meaningful feedback or reliance on purely evaluative judgments may frustrate competence perceptions and reduce motivation. In Pakistan's higher education system, where high-stakes terminal examinations dominate assessment and where large class sizes limit individualized attention, feedback mechanisms may be especially inadequate, potentially contributing to the limited explanatory power of motivational variables for academic performance.

2.6 Research Questions and Present Contribution

Despite the growing body of research on motivation and academic performance in Pakistani higher education, several aspects remain insufficiently examined. First, the geographic concentration of existing research in metropolitan centers leaves substantial regions, including southern Punjab, unrepresented in the scholarly record. Second, most studies employ either purely quantitative or purely qualitative designs, limiting their ability to both establish generalizable patterns and explain the mechanisms underlying observed relationships. Third, the relative predictive power of intrinsic versus extrinsic motivation in Pakistan's collectivist context has not been systematically examined, leaving uncertainty about whether SDT's theoretical hierarchy applies in this setting. Fourth, the interaction between motivational orientations and institutional factors such as teaching quality, feedback mechanisms, and resource availability remains underexplored.

The present study addresses these limitations through several design features. Its focus on southern Punjab provides evidence from a region underrepresented in existing research. The

sequential explanatory mixed-methods design combines statistical generalizability with qualitative depth, enabling both pattern identification and mechanistic explanation. The explicit comparison of intrinsic and extrinsic motivation's relative predictive power tests SDT's theoretical hierarchy in a novel cultural context. Finally, the integration of institutional and pedagogical factors into the qualitative analysis illuminates how educational environments shape the translation of motivation into academic outcomes.

3. METHODOLOGY

3.1 Research Design

This study employed a sequential explanatory mixed-methods design, in which quantitative data collection and analysis preceded qualitative interviews to explain and interpret statistical patterns (Creswell & Clark, 2017). This approach was selected because it permits identification of broad motivational patterns through survey data while using in-depth interviews to illuminate the mechanisms and contextual conditions underlying those patterns. The quantitative component formed the core of the study, measuring the strength, direction, and predictive power of relationships between intrinsic motivation, extrinsic motivation, and academic performance. The qualitative component was both exploratory and explanatory, examining how family expectations, institutional resources, teaching methods, and cultural norms influence students' motivation and persistence. The three hypotheses stated in the Introduction (H1–H3) were tested using correlation and multiple regression analysis.

3.2 Participants

The quantitative sample comprised 300 undergraduate and postgraduate students drawn from three universities in Rahim Yar Khan and Bahawalpur, southern Punjab: Islamia University of Bahawalpur (n = 114, 38.0%), Khawaja Fareed University of Engineering and Information Technology (n = 91, 30.3%), and National College of Business Administration and Economics (n = 95, 31.7%). Stratified random sampling ensured representation across faculties (Sciences, Arts, Engineering, Business, Social Sciences) and genders. The sample included 167 undergraduates (55.7%) and 133 postgraduates (44.3%), with a slight female majority (57.0%, n = 171). The 21–22 age group was most represented (31.7%, n = 95).

For the qualitative phase, 12 students were purposively selected from the quantitative sample to reflect variation in motivation levels, academic stages, fields of study, and universities. This sample included students from all three institutions, representing programs in Education, English, and Information Technology. Both undergraduate and postgraduate students were included.

3.3 Instruments

Intrinsic and extrinsic motivation was assessed using a shortened version of the Academic Motivation Scale (Vallerand et al., 1992), adapted for Pakistani students and administered in both English and Urdu. The instrument contained seven items measuring intrinsic motivation (internal interest, enjoyment, and personal satisfaction in learning) and seven items measuring extrinsic motivation (external influences including grades, career opportunities, family expectations, and rewards). Items were scored on a 5-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Academic performance was operationalized as self-reported Cumulative Grade Point Average (CGPA), which was coded on a five-point ordinal scale (1 = below 2.0; 2 = 2.0–2.49; 3 = 2.5–2.99; 4 = 3.0–3.49; 5 = 3.5–4.0), consistent with HEC grading conventions in Pakistan. Self-report was employed because institutional transcripts were not accessible across all three participating universities; prior research has demonstrated adequate convergent validity between self-reported and official GPA in similar settings (Richardson et al., 2012).

The qualitative interview guide explored students' definitions and sources of academic motivation, experiences related to autonomy, competence, and relatedness, the influence of family and finances, and recommendations for institutional improvement. Interviews were conducted via WhatsApp, Zoom, or Skype according to

participant preference, audio-recorded, and transcribed. Urdu interviews were translated into English for analysis.

Internal consistency reliability, assessed via Cronbach's alpha using IBM SPSS Statistics Version 21, was moderate for the intrinsic motivation subscale (α = .567) and below the conventional threshold of .70 for the extrinsic motivation subscale (α = .482). These values likely reflect the heterogeneous, multidisciplinary sample and the cross-cultural adaptation of the original scale. Both subscales were retained for analysis, consistent with precedent in Pakistani motivation research (Afzal et al., 2010; Iqbal et al., 2023), but findings involving extrinsic motivation should be interpreted with appropriate caution given the lower reliability estimate.

3.4 Data Analysis

Quantitative data were analyzed using IBM SPSS Statistics Version 21. Descriptive statistics summarized demographic characteristics and variable distributions. Pearson's correlation analysis examined bivariate relationships between motivation types and academic performance. Multiple regression analysis determined the relative predictive power of intrinsic and extrinsic motivation for CGPA.

Qualitative data were analyzed using thematic analysis following Braun and Clarke (2006) six-step process: familiarization with transcripts, generation of initial codes, searching for themes, reviewing themes against coded data, defining and naming themes, and producing the analytical report. Analytical credibility was enhanced through member checking, in which three purposively selected participants (P4, P9, and P12) were provided with summaries of the identified themes and asked to evaluate whether these accurately represented their experiences. All three confirmed the thematic representation, with minor clarifications incorporated into the final analysis. Additionally, a reflexivity statement was maintained throughout the analysis, acknowledging that the researcher's own educational background in Pakistan may have influenced thematic interpretation, and steps were taken to foreground participant language over researcher inference.

3.5 Ethical Considerations

Institutional permission was obtained from Islamia University of Bahawalpur, Khawaja Fareed University of Engineering and Information Technology (KFUEIT), and National College of Business Administration and Economics (NCBAE) prior to data collection. Informed consent was obtained from all participants before participation in the study. Participation was voluntary and anonymous, and no personal identifiers were linked to the data. Participants were informed of their right to withdraw from the study at any stage without any consequences.

4. RESULTS AND DISCUSSION

4.1 Descriptive and Reliability Statistics

Students reported high levels of both intrinsic motivation (M = 4.017, SD = 0.529) and extrinsic motivation (M = 3.928, SD = 0.485), with both means well above the scale midpoint of 3.0, as shown in Table 1. The near-equivalent means suggest that students in this sample are simultaneously driven by genuine internal interest and powerful external demands, a pattern consistent with the collectivist educational culture of southern Punjab where personal scholarly passion and family-driven achievement pressures operate in tandem (Naz et al., 2020; Shahzad et al., 2023). The small standard deviations indicate ceiling effects that constrain variance and may limit statistical power to detect relationships.

Table 1 *Descriptive Statistics and Intercorrelations among Study Variables (N = 300)*

Variable	M	SD	α	1	2	3
1. Intrinsic Motivation	4.017	0.529	0.567	—		
2. Extrinsic Motivation	3.928	0.485	0.482	0.260***	—	
3. Academic Performance	—	—	—	0.076	0.177**	—

(CGPA)						

Note. *** p < .001; ** p < .01. CGPA coded on a 5-point ordinal scale (1 = below 2.0 to 5 = 3.5–4.0).

Internal consistency estimates (intrinsic motivation: α = 0.567; extrinsic motivation: α = 0.482) were reported in Section 3.3 and are noted here as context for interpreting the statistical analyses that follow.

Academic performance scores were heavily skewed toward high achievement, with 87.7% of respondents reporting CGPAs in the two highest bands (3.0–3.49 and 3.5–4.0). This distribution pattern is not merely a statistical inconvenience but a substantive finding: it reflects the intensity of grade competition and familial pressure in this context, where near-universal high achievement may itself indicate the pervasiveness of extrinsic motivational saturation. Methodologically, this ceiling effect restricts variance and attenuates correlation coefficients regardless of underlying relationship strength (Field, 2024; Richardson et al., 2012), meaning observed effects represent conservative lower-bound estimates.

4.2 Correlation and Regression Analyses

The correlation between intrinsic motivation and CGPA was positive but did not reach statistical significance ($r = 0.076$, $p = 0.188$), providing no support for H1 at the bivariate level. However, this null finding should be interpreted cautiously given the ceiling effects in both the motivational and performance measures. The effect size was negligible ($r^2 = 0.006$), with intrinsic motivation explaining less than 1% of variance in CGPA. This null finding may reflect the ceiling effect in intrinsic motivation scores rather than indicating a genuinely absent substantive effect. When almost all students report high intrinsic motivation, the construct loses discriminatory power for predicting differential academic outcomes.

Table 2 ***Multiple Regression Analysis Predicting Academic Performance (CGPA) from Intrinsic and Extrinsic Motivation***

Predictor	B	SE B	β	t	p
Intrinsic Motivation	0.033	0.059	0.033	0.549	0.583
Extrinsic Motivation	0.168	0.060	0.168	2.813	0.005

Note. $R = 0.179$; $R^2 = 0.032$; $F(2, 297) = 4.89$, $p = 0.008$.

In contrast, extrinsic motivation showed a weak but statistically significant positive relationship with academic performance ($r = 0.177$, $p = 0.002$), providing initial support for Hypothesis 2. Although the effect size was small ($r^2 = 0.031$), the finding suggests that external motivational factors including grades, family expectations, career goals, and rewards positively influence academic achievement in this context. The significant correlation between intrinsic and extrinsic motivation ($r = 0.260$, $p < 0.001$) indicates that these orientations co-exist as complementary rather than competing forces, suggesting that the classical SDT dichotomy between autonomous and controlled motivation may be less absolute than previously assumed.

Multiple regression analysis with CGPA as the dependent variable and both motivation types entered simultaneously produced $R = 0.179$ and $R^2 = 0.032$, indicating that intrinsic and extrinsic motivation together explained approximately 3.2% of variance in academic performance, as presented in Table 2**.** Intrinsic motivation did not significantly predict academic performance (β = 0.033, p = 0.583), whereas extrinsic motivation emerged as a significant predictor (β = 0.168, p = 0.005). These results lead to rejection of H3: contrary to the classical SDT hierarchy, extrinsic motivation was the stronger predictor in this sample.

The relatively small explanatory power of the model ($R^2 = 0.032$) suggests that academic performance is influenced by multiple factors beyond motivation alone. Variables such as

institutional support, socioeconomic background, teacher feedback, family expectations, and learning environment may also contribute substantially to students' academic outcomes. Therefore, motivation should be interpreted as one contributing factor rather than a sole determinant of academic performance.

The stronger predictive power of extrinsic motivation offers an important contextual interpretation of SDT and suggests that motivational processes may operate differently in collectivist educational settings. Rather than indicating theoretical failure, however, this finding reveals a boundary condition: in educational contexts where external expectations are culturally internalized as core personal values, the autonomy-competence-relatedness pathway may be satisfied through socially embedded goals rather than individually defined interests. This aligns with Chirkov et al. (2003) demonstration that autonomy is not equivalent to individualism, and with Reeve (2024) recent argument that integrated motivational orientations require theoretical recognition beyond the classical dichotomy.

The finding that extrinsic motivation outperforms intrinsic motivation as a predictor stands in contrast to González-Arias et al. (2025), who found in European higher education that intrinsic motivation consistently showed higher beta values than extrinsic motivation. Several contextual factors may help explain this discrepancy. One possible explanation is that students in the European context may have demonstrated greater variability in intrinsic motivation scores, allowing stronger differentiation in predicting academic outcomes. Second, Pakistan's assessment system, dominated by high-stakes terminal examinations, creates structural conditions that amplify the salience of grade-related extrinsic motivators. Third, the near-universal family expectations documented in the qualitative data suggest that extrinsic pressure functions not as an external control, as classical SDT would predict, but as an internalized personal obligation, approximating what SDT terms identified or integrated regulation.

4.3 Qualitative Findings

Thematic analysis of 12 interviews identified six major themes that explain, extend, and contextualize the quantitative results.

Theme 1: Intrinsic Motivation, Personal Interest, and Autonomy: All participants described heightened motivation when course content aligned with personal interests and when teaching methods were interactive rather than purely didactic. P6 (BS English) described heightened motivation when course content was contextualised in everyday life: "When the teacher gives real examples from life, I feel like the subject is meant for me." This account illustrates the competence-relevance link central to SDT: when learners can connect abstract content to personally meaningful domains, intrinsic interest is activated even within constrained institutional settings (Ryan & Deci, 2024). P4 (MPhil Education) described a semester when an interactive, student-centered teaching style combined with freedom to choose research topics produced exceptional engagement and a heightened sense of ownership in learning. P3 (BS Education) similarly emphasized the importance of engaging instruction: "I feel highly motivated when I am interested in the subject and when the teacher explains the topic in an engaging and understandable way. When the teacher relates the topic to real-life situations, it becomes easier to understand and more enjoyable to learn." These accounts confirm SDT's proposition that intrinsic motivation thrives when autonomy and competence needs are satisfied, even though the quantitative relationship with CGPA was weak and non-significant.

Theme 2: Extrinsic Motivation, Grades, Career Goals, and Family Expectations: External motivators were consistently present and often urgent across all interviews. Career-related motivation was most frequently cited among IT and postgraduate students. P10 (BS IT) directly linked academic effort to career outcomes: "I know that if I learn programming and databases properly, I will get a good job — that is what keeps me focused every day." This account exemplifies how extrinsic career goals function as sustained

motivational drivers rather than superficial incentives, consistent with SDT's concept of identified regulation (Ryan & Deci, 2024). Family expectations carried particular emotional weight, representing not merely instrumental pressure but a sense of duty to honor family investment in education. P1 (BS Education) described how family support and expectations simultaneously motivated harder work: "Another strong motivation for me is my family. My family supports me and expects me to succeed in my education. Their encouragement motivates me to work harder." P10 captured the paradoxical quality of family expectations as simultaneously motivating and pressuring, noting that the desire to make his family proud coexisted with the stress of financial responsibilities. These qualitative accounts help explain why extrinsic motivation emerged as the stronger statistical predictor: in this socio-cultural context, external drivers are not peripheral incentives but core components of students' motivational systems.

Theme 3: Institutional Environment, Teacher Support, and Learning Resources: Participants consistently identified approachable, encouraging teachers as among the strongest positive influences on motivation. P5 (English Literature) recalled a turning point with a supportive teacher: "She never made me feel stupid. She would explain it again and again until I understood — and that year I passed mathematics for the first time." This transformation illustrates how teacher–student relational quality directly activates the relatedness need identified by SDT as foundational for sustained motivation (Ryan & Deci, 2024). Conversely, large class sizes and inadequate resources were identified as undermining motivation. P7 (BS Education) noted that overcrowded classrooms reduced individual attention: "However, large class sizes sometimes reduce individual attention, which can lower students' motivation." P8 (MPhil Education) similarly observed that overcrowded conditions weakened the sense of connection that sustains engagement: "However, overcrowded classrooms sometimes limit personal attention from teachers, which can reduce students' motivation and engagement." These findings map directly onto SDT's need for relatedness and help explain why the two-predictor motivational model explained limited variance: institutional conditions mediate the translation of motivation into performance in ways not captured by the survey instrument.

Theme 4: Feedback and Competence: A consistent confidence cycle emerged across transcripts: specific, constructive feedback produced improved competence perceptions, which strengthened intrinsic motivation and performance, while absent or vague feedback produced the reverse. P9 (BS IT) described how detailed feedback transformed his approach to coding:

"During a web development project in the previous semester, detailed feedback from my instructor significantly improved my confidence and performance. Instead of only assigning a grade, the teacher provided specific suggestions about improving my JavaScript code, organizing my program structure, and applying responsive design principles. This guidance helped me improve my skills and motivated me to perform better in future assignments."

Similarly, P4 (MPhil Education) recalled how constructive feedback on a research proposal, combined with regular mentoring, built his academic confidence:

"I remember a time when a teacher gave detailed and constructive feedback on my research proposal. The feedback clearly explained both strengths and areas that needed improvement. Regular guidance and mentoring sessions helped clarify my doubts and increased my confidence in my research abilities. As a result, my academic performance improved and I felt more motivated to continue my work."

These findings identify feedback quality as a critical mediating variable not captured in the quantitative survey, providing a compelling explanation for part of the unexplained variance in the regression model.

Theme 5: Social and Family Factors: Family relationships functioned as simultaneously the most powerful motivational anchor and, in some cases, a significant source of stress. P1 (BS Education), managing studies alongside motherhood, captured this duality precisely:

"Family support plays a very important role in my motivation. My family encourages me to continue my education and achieve my goals. Since I am also a mother, I have additional responsibilities. Balancing family and studies can sometimes be difficult, but it also motivates me to work harder because I want to build a better future for my child."

P10 (BS IT) articulated the tension between financial pressure and familial duty:

"Family expectations play an important role in motivating me to succeed academically. The desire to make my family proud encourages me to work harder. However, financial challenges sometimes require balancing part-time work with academic responsibilities, which can lead to fatigue and reduced study time. Managing these responsibilities makes time management a major challenge, although the desire to build a stable future keeps me motivated."

P5 (English Literature) described a supportive family environment as providing stability for academic focus: "Family support plays a very important role in my motivation. When families provide encouragement and emotional support, it positively influences students and helps them stay focused on their studies." This dual character, motivating yet potentially stressful, aligns with SDT's concept of introjected regulation, where external pressure is partially internalized as personal obligation without becoming fully autonomous.

Theme 6: Strategies for Improvement: Participants offered grounded recommendations for enhancing motivation: transforming pedagogical practice toward interactive and project-based methods, strengthening student support infrastructure, and implementing continuous assessment systems in place of high-stakes terminal examinations. P12 (MPhil Education) argued that making courses more practical and industry-relevant would increase engagement:

"One major improvement would be making courses more practical and industry-relevant. When students clearly see the real-world applications of what they are learning, they become more engaged and motivated in their studies."

P9 recommended expanding student support services beyond the classroom:

"Universities can improve student motivation by adopting interactive and project-based teaching strategies, especially in technical fields such as IT. They should also provide stronger student support programs, including mentoring networks, coding assistance sessions, and mental health support services."

P10 articulated the case for continuous assessment compellingly:

"One major change would be shifting from a final-exam–focused system to a continuous assessment model. Regular quizzes, assignments, and project-based evaluations would help students remain consistently engaged and reduce the pressure associated with high-stakes examinations."

From an SDT perspective, continuous assessment simultaneously supports autonomy, competence, and relatedness, suggesting that participant recommendations are grounded in the same motivational psychology that underpins the study's theoretical framework.

4.4 Integrated Interpretation

The integration of quantitative and qualitative findings produces a coherent account of motivation and academic performance in southern Punjab that is richer than either strand alone. The high quantitative means for both motivational types are explained qualitatively by the finding that Pakistani university students experience a structurally integrated form of motivation in which personal interest and family obligation have become fused. The weak non-significant relationship between intrinsic motivation and CGPA is given causal texture by qualitative evidence that intrinsic motivation produces deeper cognitive engagement and mastery-oriented learning, even when statistical relationships are attenuated by measurement limitations and ceiling effects. The stronger predictive power of extrinsic motivation is explained by the pervasiveness and internalization of external drivers across the entire sample, rather

than by the superiority of controlled over autonomous motivation per se.

The regression model's limited explanatory power (R^2 = 0.032) is contextualized by qualitative evidence identifying teacher feedback quality, institutional resource access, and financial constraints as additional determinants of academic performance beyond the scope of the two-predictor model. These findings collectively suggest that while motivation remains an important influence on academic success in Pakistani higher education, its full impact cannot be captured through quantitative analysis of intrinsic and extrinsic constructs alone. The qualitative data establish feedback quality, teacher-student relationships, and financial stress as variables that future quantitative studies should incorporate to build more complete predictive models.

While the study was conducted in southern Punjab, Pakistan, the pattern of internalized extrinsic motivation exceeding intrinsic motivation as a performance predictor may extend to other collectivist societies in South Asia (e.g., Bangladesh, India, Sri Lanka) and beyond (e.g., parts of the Middle East, East Asia), where family obligations similarly shape educational motivation. This pattern may be particularly salient in contexts where tertiary education serves as a primary vehicle for family socioeconomic mobility and where institutional resources for student-centered pedagogical reform are limited.

5. CONCLUSIONS

This study examined how intrinsic and extrinsic motivation influence academic performance among university students in southern Punjab, Pakistan, using a sequential explanatory mixed-methods design grounded in Self-Determination Theory. Five main conclusions emerge from the integrated findings.

First, intrinsic motivation showed a negligible positive association with academic performance that did not reach statistical significance, though qualitative evidence confirmed that students with stronger personal interest, autonomy, and competence-related experiences demonstrated better academic engagement. Second, extrinsic motivation demonstrated a statistically significant positive relationship with CGPA and emerged as the stronger predictor in regression analysis, contrary to the directional prediction derived from classical SDT. Third, both motivational types co-existed at high levels and operated as an integrated rather than dichotomous system, suggesting that in Pakistan's collectivist educational culture the SDT continuum functions differently than in Western individualist contexts. Fourth, qualitative analysis identified institutional environment, feedback quality, and social-family factors as critical additional influences on academic performance beyond motivation alone. Fifth, the overall findings confirm that motivation plays an important role in higher education but that simple two-factor models capture only a fraction of the relevant variance, underscoring the necessity of mixed-methods approaches for understanding student motivation in contextually complex educational environments.

These findings offer a nuanced interpretation of SDT in two specific respects. First, they establish cultural context as a moderator of the intrinsic-extrinsic predictive hierarchy: in collectivist settings where family obligations are internalized as personal values, extrinsic motivation operating at identified or integrated regulatory levels may exceed intrinsic motivation as a direct predictor of academic achievement. This does not invalidate SDT's continuum model but refines its application, suggesting that the 'optimal' motivational form is contextually contingent rather than universally fixed. Second, the convergence of high intrinsic and extrinsic scores ($r = 0.260$, $p < 0.001$) and their positive intercorrelation empirically support recent theoretical calls to treat these constructs as integrated rather than dichotomous in collectivist educational research (González-Arias et al., 2025; Reeve, 2024).

From a theoretical standpoint, the results suggest that SDT's motivational hierarchy may require contextual calibration rather than universal application. The finding that extrinsic motivation predicts academic outcomes more strongly than intrinsic motivation in this setting does not invalidate the continuum model but indicates that the 'optimal' regulatory form depends on the

degree to which external expectations have been culturally internalized. This aligns with recent theoretical developments recognizing identified and integrated regulation as functionally equivalent to intrinsic motivation when personal and social values converge.

5.1 Practical Implications and Recommendations

Universities should implement mandatory semester-long faculty development programs comprising three modules: (1) formative assessment design, with practicum sessions on rubric construction and feedback timetabling; (2) project-based learning facilitation, including supervised pilot implementation in one course; and (3) student-centered questioning techniques, with video-recorded peer review. Pilot implementation should begin in introductory courses, where teacher–student relationship quality has demonstrated the greatest long-term motivational impact (Theme 3), before system-wide rollout. Effectiveness should be evaluated through pre–post student motivation surveys using validated instruments such as the Academic Motivation Scale (Vallerand et al., 1992) or the Basic Psychological Needs Scale(Gagné & Deci, 2005), with periodic evaluation of changes in student motivation and academic outcomes.

For institutional policy, regular motivational audits should monitor the motivational climate and identify departments where student engagement is declining. Class size policies should be reviewed with attention to reducing student-teacher ratios in introductory courses, where positive teacher-student relationships have greatest long-term impact. Financial aid accessibility should be expanded and streamlined, as financial stress functions as a direct motivational threat by diverting cognitive and emotional resources from academic engagement.

5.2 Limitations and Future Research

Several limitations should be acknowledged when interpreting these findings. First, the restricted variance in both motivational measures (high mean scores, small standard deviations) and the dependent variable (87.7% of participants in the top two CGPA bands) likely attenuated observed correlations, meaning the true motivational effects on academic performance may be underestimated. Second, the extrinsic motivation subscale demonstrated below-threshold internal consistency ($\alpha = 0.482$), introducing measurement error that constrains the precision of estimates. Third, the cross-sectional design precludes causal inference; longitudinal research is needed to establish whether motivational orientations precede and predict changes in academic performance over time. Fourth, despite purposive sampling, the qualitative sample of 12 participants drawn from three programs may not capture the full range of motivational experiences across southern Punjab's diverse student population. Fifth, the study's focus on three universities in a single region of Pakistan limits generalizability to other provinces (e.g., Sindh, Khyber Pakhtunkhwa) and to private institutions with different resource profiles. Sixth, the binary intrinsic-extrinsic measurement, while consistent with prior Pakistani research, does not capture SDT's full regulatory continuum (external, introjected, identified, integrated, and intrinsic). Future studies employing the full Academic Motivation Scale or the Motivated Strategies for Learning Questionnaire would enable more nuanced testing of whether extrinsic motivation in this context operates primarily at identified/integrated levels.

Future research must move beyond two-predictor motivational models by incorporating institutional quality indicators, feedback frequency and quality measures, financial constraint variables, and family-related stressors as direct predictors of academic performance. Longitudinal designs are essential to establish whether motivational orientations precede and predict performance trajectories over time, and gender-stratified analyses should investigate how motivational processes operate differently across student subgroups. Most critically, the SDT need satisfaction model should be directly operationalized in developing-country higher education by measuring autonomy support, competence feedback, and relatedness from teachers as specific predictors, creating full pathway models from institutional conditions through psychological need satisfaction to

motivational types and academic outcomes. Without such contextually complete models, educational interventions in resource-constrained settings risk being designed around theoretically incomplete and practically ineffective assumptions.

For educational policy in resource-constrained settings globally, the findings suggest that interventions targeting feedback quality, teacher-student relational capacity, and career-relevant pedagogy may yield greater returns than programs focused exclusively on cultivating intrinsic interest. This is particularly relevant for developing-country higher education systems where family-driven achievement pressures are pervasive and where the institutional capacity for large-scale student-centered pedagogical reform is limited.

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