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DETERMINANTS OF STUDENT RETENTION IN NON-FORMAL EDUCATION CENTERS: A CASE OF SINDH PROVINCE

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Abstract

The aim of this research is to examine the roles of teacher-student interactions, academic self-efficacy, and extracurricular activities for student retention in Non-Formal Education (NFE) centers in Sindh, Pakistan. The study followed a quantitative methodological approach. The study covered 558 students enrolled at different NFE centers across numerous districts of Sindh. Simple random sampling was exploited in selecting the respondents. Data were gathered via a 5-point Likert-type scale questionnaire. The data was analyzed using PLS-SEM given the complexity of the model. The result indicated that academic self-efficacy has a negative and insignificant effect on student retention. However academic self-efficacy has a positive and significant effect on student satisfaction. Extracurricular activities have a positive and significant effect on both stent retention and student satisfaction. Student satisfaction has a positive and significant effect on student retention. Whereas, teacher-student interaction has a positive and insignificant effects on student retention. Teacher-student interaction has positively significant effects on student satisfaction. Moreover, switching barriers has negatively and significant moderates between student satisfaction and student retention. Student satisfaction has

positively and significant mediates between teacher-student interaction, academic self-efficacy, and extracurricular activities with student retention. Therefore, interventions for increasing student mixing may encourage extracurricular activities and hence better retention in NFE centers; and switching barriers must be very carefully managed to ensure that they pander to satisfaction-based retention and not hinder it.

Keywords: *Student Retention, Non-Formal Education Centers, Sindh, PLS-SEM.*

INTRODUCTION

BACKGROUND OF THE STUDY

Student retention has emerged as the critical concern within global educational discourse, particularly in systems striving to ensure equitable access and successful completion of educational programs. The capacity of a school to keep students enrolled through program's conclusion is termed as retention (Abeysooriya et al., 2024a). A high retention rate indicates that the education is successful, engaging, and supportive. In contrast, low retention is often a sign of disengagement, poor teaching quality, and systemic socio-economic barriers. This is particularly critical in non-formal education (NFE) systems that find their learners marginalized by poverty, gender disparities or isolation of geography. On the contrary, unlike formal education, NFE provides flexible learning models that take care of diverse learners; however, globally and specifically in developing areas such as Pakistan, they have high dropout rates (Datoo et al., 2024). However, in the NFE settings, these challenges are exacerbated because they exist in resource constraints, deprived of support from the government and the sociocultural context of students (Rahman, 2025).

It has been established by several studies that student retention is highly related to some institutional and individual factors. Quality teacher-student interaction, access to academic support services, and opportunities to develop and practice skills form part of institutional aspects (Turney, 2024). However, individual elements that have a greater impact on a student's decision to keep going their studies include academic self-efficacy, personal drive, including family support (Brown, 2024). Tinto (2025), stated that a strong sense of belonging, purpose, and academic achievement keeps

students in school, implying that there must be relational and cognitive engagement in learning environments. Additionally, student satisfaction has been known to be a mediating factor between institutional services and retention outcomes. If students believe that their educational environment meets their learning needs, then they would most likely remain committed and would be less likely to quit their studies (Oanh & Tho, 2024) This is particularly important where formal education is unavailable and NFE is the only way to continue the learning process.

Furthermore, peer interaction and community involvement are essential for a student-centered experience. Many NFE programs have a communal ethos that promotes collaboration and learning in ways that support a student's (Azli et al., 2024). Since these are places where these individuals go for approval including empowerment, inclusive learning environments are important for girls and kids from low-income families (Pasha, 2024). Finally, from a pedagogical point of view, NFE settings offer a lot for learning and personal development, opportunities that depend on a dynamic interplay among the quality of pedagogy offered, the institutional support provided, and socio-cultural factors. These aspects need to be improved to gain satisfaction, development of resilience and ultimately increase student retention in NFE programs.

NFE centres in Sindh cater to the educational needs of adults and children who are not enrolled in formal education. Sindh, which is the second most populous province in Pakistan, has long struggled with frequent dropouts, a poor rate of literacy, along with restricted access to excellent education, especially in semi-urban and rural regions (Tariq & Farooq, 2023). In response, governmental and non-governmental organizations established NFE centers to provide a flexible, inclusive, and community-based alternative learning opportunity. NFE programs are a necessity and a critical alternative for marginalized groups in Sindh, Pakistan, and provide them with a chance to pursue their life goals. However, empirical research exploring institutional and psychological factors influencing student retention on this platform is still limited (Hidayat et al., 2024). In particular, issues of how teacher-student interaction, academic self-efficacy, and extracurricular activities have affected retention have not received

much attention, primarily through the mediating role of student satisfaction or moderating effect of switching barriers (Kushtiwala & Iqbal, 2023; Lal et al., 2023). Earlier research has discussed structural obstacles like poverty, poor infrastructure and a lack of government support. Despite the work showing the complexity of the connection among individual along with institutional environments in NFE, little effort has demonstrated the complexities between personal motivation and institutional investment (Rahman, 2025).

This gap in the literature is meaningful, considering the operational shortcomings associated with NFE centers. These are underqualified teachers, varying instructional preparations, and inadequate supplies like learning materials and classrooms, all of which precipitate disengagement and premature dropouts (Khalid, 2023). Financial struggles ultimately worsen the matter, particularly for low-income students, meaning they have to choose between work and school due to the absence of such incentives as stipends or transportation (Oanh & Tho, 2024). Gender inequities exacerbate the situation that many girls in semi-urban or countryside regions are forced into early marriages, domestic chores and strong traditions, which do not allow the individuals to get involved in learning (Pasha, 2024).

OBJECTIVES OF THE STUDY

Following are the research objectives of the study.

RO 1. To examine the impact of teacher-student interaction, academic self-efficacy, and extracurricular activities on student satisfaction and student retention in NFE centers in Sindh Province.

RO 2. To investigate the impact of student satisfaction on student retention in NFE centers in Sindh Province.

RO 3. To assess the mediating effect of student satisfaction on the relationship between teacher-student interactions, academic self-efficacy, extracurricular activities, and student retention.

RO 4. To evaluate the moderating effect of switching barriers on the relationship between student satisfaction and student retention.

SIGNIFICANCE OF THE STUDY

The research is significant for educational development in Sindh, where NFE programs serve marginalized populations. Persistent dropout rates jeopardize their long-term impact. Through investigating the differentiation of student retention in alternative learning environments teacher–student interaction, academic self-efficacy, extracurricular activities, as well as switching barriers as moderators, this study makes meaningful contributions toward understanding how we can maintain student involvement in alternative learning environments. This study provides valuable guidance at the practical level to education managers, policy maker, non-governmental organizations and donor agencies. Its findings can be used to foster the growth of targeted teacher training programs, improved instructional delivery, and more effective intervention in the behavior of students. The investigation could also encourage funding bodies to invest in aspects of NFE that demonstrably improve retention, e.g. mentoring, skill development programs, or flexible scheduling.

RESEARCH METHODOLOGY

RESEARCH DESIGN

This quantitative study aimed to collect and analyze numerical data to explore the variables affecting student retention at Sindh's NFE centers. Quantitative studies permit researchers to measure variables through standardized instruments and provide objective test of hypotheses using statistical tools (Creswell & Creswell, 2017). The nature of the study was explanatory, having looked into the cause-and-effect link among variables. In this case the study aimed at explaining how different educational and psychological factors affected the outcomes of the student's satisfaction and retention in NFE settings (Saunders et al., 2009).

SAMPLE DESIGN

This study was among the population of students taking NFE centers in different districts of Sindh Province, Pakistan. The study was specifically aimed at those students attending NFE centers for a minimum period of three months and aged at least 12 years. This criterion gave the participants enough experience with the NFE environment to answer meaningfully on their learning basis (Kushtiwala & Iqbal, 2023). A probability based simple random sampling technique was used to select a sample from the population of students of NFE centers residing in Sindh Province. Besides, the selected districts were Karachi, Hyderabad, Sukkur, Mirpurkhas, Larkana and Jacobabad, including the urban, semi urban, and rural areas. They chose these locations because they encompass a diverse range of socio-economic, geography, and different levels of education to capture a wide range of student population. This included including multiple districts to ensure a representative sample and make the findings generalizable more broadly over the NFE landscape in Sindh (Tariq & Farooq, 2023).

The N15 rule determined the sample size for this study. The minimum sample size per observed variable should be at least 15 respondents in the research instrument (Memon et al., 2020). Since the study structured questionnaire was used with 36 items, the minimum sample size was estimated to be 540 respondents. As a result, to attain more accuracy and an allowance for possible missed responses or incomplete data, the

researchers decided to conduct the study on 558 students enrolled in NFE centers in Sindh Province.

VARIABLES

- ***Independent Variables**: Teacher–Student Interaction, Academic Self-Efficacy, Extracurricular Activities*
- ***Mediator:** Student Satisfaction*
- ***Moderating Variable:** Switching Barriers*
- ***Dependent Variable:** Student Retention in NFE Centers*

INSTRUMENT

Teacher-Student Interaction

Teacher-student interaction refers to communication, engagement, and collaboration between teachers and students in learning (Sun et al., 2022). The study has adapted eight measures from Sun et al. (2022); Xiao et al. (2023) based on a five-point Likert scale, such as "I get feedback from the teacher," with an alpha coefficient of 0.83.

Academic Self-Efficacy

Academic self-efficacy refers to a student's belief in their ability to succeed in academic tasks (Syukur et al., 2024). The study has adapted ten measures from Rowbotham and Schmitz (2013) based on a five-point Likert scale, such as "I am convinced that I can successfully learn all relevant subject content even if it is difficult," with an alpha coefficient of 0.84.

Extracurricular Activities

Extracurricular activities pertain to non-academic programs that enhance students' skills, interests, and social development (Bakoban & Aljarallah, 2015). The study has adapted five measures from Bakoban and Aljarallah (2015) based on a five-point Likert scale, such as "The place of activities is appropriate," with an alpha coefficient of 0.70.

Student Satisfaction

Student satisfaction refers to students' contentment with educational experiences, resources, and overall academic environment (Wilkins & Stephens Balakrishnan, 2013). The study has adapted four measures from Wilkins and Stephens Balakrishnan (2013) based on a five-point Likert scale, such as "My choice of this center was a wise decision," with an alpha coefficient of 0.75.

Student Retention

Student retention refers to the continued enrollment of students in an educational institution until program completion (Eresia-Eke et al., 2020). The study has adapted four measures from Eresia-Eke et al. (2020) based on a five-point Likert scale, such as "If I had a choice to start again, I would still study at this center," with an alpha coefficient of 0.73.

Switching Barriers

Switching barriers refer to obstacles preventing students from transferring to another educational institution or program (Eresia-Eke et al., 2020). The study has adapted five measures from Ranaweera and Prabhu (2003) based on a five-point Likert scale, such as "I might have changed my center if I could do so without hassle," with an alpha coefficient of 0.70.

DATA ANALYSIS TECHNIQUE

This study used the PLS-SEM because contexts with multiple levels of independent, mediator and moderator variables can only use PLS-SEM to test for the measurement and structural models (Hair et al., 2023). PLS-SEM was a justifiable consideration of model complexity and the explanatory nature of the study. All concepts in this study were treated as reflective to agree with theoretical definitions. The reflective constructs suppose that the observable indicators represent the latent variable (Ringle et al., 2023). Indicators of a reflective nature were used to evaluate constructs like teacher-student interaction, academic self-efficacy, extracurricular activities, student satisfaction, student retention and switching barriers. Outer loadings, Cronbach's alpha, composite reliability (CR), and average variance extracted (AVE), with all metrics meeting suggested levels (CR > 0.70; AVE > 0.50) (Hair et al., 2023).

LITERATURE REVIEW

Student Satisfaction

One multifaceted measure of an institution's excellence is satisfaction among students. It has a significant impact on how committed as well as engaged students are in their studies. Satisfaction is influenced by a constellation of interconnected factors (Hussain et al., 2024). Among the

most influential components is academic quality, where knowledgeable instructors, interactive pedagogy, and clear course delivery significantly enhance students' perceptions of their learning experience (Azli et al., 2024). Simultaneously, essential academic resources such as libraries, laboratories, and digital platforms support positive engagement, especially in resource-limited environments (Fatima et al., 2024).

H1. Student satisfaction has a positive impact on student retention in NFE centers.

Teacher-Student Interaction

Effective teaching and learning depend upon the interaction among teachers and students, which influence education about academic skills or students' emotional, behavioral, and social development. This interaction also includes all the verbal and nonverbal communicative exchanges between educators and learners that comprise the classroom climate (Ijaz et al., 2023). Supportive relationships produce an emotion of belonging that opens the path for interest as well as tenacity for completing tasks. Students are more inclined to take educational hazards along with participate fully when they see their professors as caring, attentive, and fair (Ali et al., 2023). Also, inclusive education includes effective interaction between students and teachers. Teachers who work toward multicultural responsiveness and honor students with varied backgrounds can construct more just and meaningful learning situations. These responses confirm the message of identity and make sure that students feel connected to the content (Gulzar et al., 2024).

H2. Teacher-student interaction has a positive impact on student satisfaction.

Academic Self-Efficacy

Academic self-efficacy is a student's belief in their ability to succeed academically, influencing motivation, effort, and persistence (Hanif et al., 2023). Students with high academic self-efficacy set high goals, engage deeply in learning activities and maintain a positive attitude toward academic achievement (Mir & Rasool, 2024). It has been consistently shown that academic self-efficacy positively correlates with academic performance. Siddique et al. (2023) suggest that students who believe in

their academic abilities will use effective learning strategies, manage their time well, and persist through adversity. They have their ways of contributing towards good academic results. The most influential type of mastery experiences are those in which a student successfully completes the task; they reinforce the student's belief of competency directly (Saher & Akbar, 2024).

H3.Academic self-efficacy has a positive impact on student satisfaction.

Extracurricular Activities

Extracurricular activities (ECA) include sports, music, drama and debate, clubs and similarly structured, voluntary programs that are out of the scope of the academic curriculum (Javed & Srivastava, 2024). One of the most documented effects of ECA involvement is academic. Those who participate in extracurricular activities have been shown to have higher grades, higher probabilities of attending school, and aspirations for higher education (Maqbool & Cremin, 2024). These can develop skills that can be transferred to academic contexts, such as time management, goal setting and discipline. Also, ECAs can influence students' sense of school membership, which prompts motivation and persistence (Hassan, 2024). It is also important for social development. Participation fosters teamwork, leadership, and communication skills. Sharing goals and working with others enables the student to learn how to control social barriers and to connect in productive peer relationships (Panhwar, 2023).

H4.Extracurricular activities have a positive impact on student satisfaction.

Student Satisfaction and Retention

Student retention is defined as the ability of an educational institution to retain students enrolled in the program till completion of the academic program. Factors such as academic support, teacher to student interaction, self-efficacy and resources available at the institutional level are critical indicators of institutional effectiveness and student success (Abeysooriya et al., 2024b). A positive learning environment, good mentorship, and student satisfaction led to high retention rates. In contrast, low retention rates signify disengagement, financial constraints, and lack of institutional support. Retention in the NFE is constrained by social and economic

barriers in this context. Students will likely persist in their education if they experience personalized learning, career guidance and positive social relationships with fellow students and instructors (Bordbar et al., 2024). Student-centered approach institutions like mentorship programs and skill development workshops generally have higher retention rates (Oanh & Tho, 2024). Student retention depends on how positively the student perceives the institution, such that the student's exchange with the institution is one of academic support, encouragement, and career opportunities. On the contrary, if students find out that the benefit of staying is less than the costs, they are likely to drop out (Tinto, 2025).

H5. Student satisfaction positively mediates the impact of teacher-student interaction on student retention in NFE centers.

H6. Student satisfaction positively mediates the impact of academic self-efficacy on student retention in NFE centers.

H7. Student satisfaction positively mediates the impact of extracurricular activities on student retention in NFE centers.

Teacher-Student Interaction and Retention

Teacher-student interaction is essential in student retention, especially in the NFE setting. Positive interactions between teachers and students enhance students' motivation, engagement, and commitment to educational participation (Abeysooriya et al., 2024b). A strong teacher-student relationship leads to a sense of belonging, increased academic persistence, and decreased dropout rate. Research shows that students whose teachers provide continuous academic and emotional support are likelier to stay in their programs. Timely feedback, effective teacher-student communication and mentorship increase students' confidence and self-efficacy, leading to long-term retention (White, 2024) . Moreover, the teacher's instructional quality, empathy, and responsiveness had significantly added effects on retention, as shown in Akosah et al. (2024). Social exchange theory explains the impact that teacher student interaction has on retention. This theory supports that the more a student receives academic support, recognition, and encouragement from a teacher, the more it is perceived as a beneficial exchange and is more likely to continue with studies (Oanh & Tho, 2024). Consequently, a lack of meaningful interaction may lead to disengagement,

dissatisfaction, and dropout. Consequently, NFE centers must focus on teacher training, student-centered pedagogies, and mentorship programs to enhance student retention (Shahid et al., 2024).

H8. Teacher-student interaction has a positive impact on student retention in NFE centers.

Academic Self-Efficacy and Retention

Academic self-efficacy is a student's belief in success in learning academic tasks. It has a large influence on motivation, learning strategy, and persistence. Research suggests that self-efficacy is positively associated with student engagement, overcoming academic challenges, and staying engaged with education, leading to increased retention rates (Bordbar et al., 2024). On the other hand, students with low self-efficacy often find themselves in situations of anxiety, disengagement and a tendency of dropping out. In NFE, retention depends on the student's self-efficacy as the socio-economic barriers are quite high. According to studies, students benefit from positive reinforcement, constructive feedback and academic support from teachers, which helps to create stronger self-affectivity and sustained engagement (Duan et al., 2024).

H9. Academic self-efficacy has a positive impact on student retention in NFE centers.

Extracurricular Activities and Retention

Student retention in terms of engagement, personal development and social integration is promoted by extracurricular activities. Activities that include sports, arts, leadership programs, and community service help students develop their sense of belonging and motivation, encouraging their commitment to education (Oanh & Tho, 2024). According to research, students who participate in extracurricular activities develop necessary skills like teamwork, time management, and problem-solving, which help their persistence in the academic setting (Shakil et al., 2024). Such programs offer students a platform to flex creativity and develop leadership even in non-formal settings where stress can originate from academic pressures lessened by personal setbacks. As powerful tools for emotional regulation and self-discovery, these outlets serve students with inadequate structured

support systems in NFE centers. Additionally, they encourage favorable peer influence and a supportive learning climate. Engaging students in group activities helps them develop a sense of ownership and responsibility toward the learning environment, thus improving student investment in the educational process (Sarwat et al., 2024).

H10. Extracurricular activities have a positive impact on student retention in NFE centers.

Moderating Role of Switching Barriers

Switching barriers prevent students from shifting to other educational institutions when they are not delighted. Financial, psychological, social, and institutional obstacles moderate the relationship between student satisfaction and retention (Oanh & Tho, 2024). Switching barriers influences students' decision whether or not to persist in their education in settings of NFE amid challenges related to academic support or institutional shortcomings. In this context of NFE these barriers are often overrated as students from marginalized communities usually do not get such a chance as means to acquire an education (Ullah et al., 2021). These barriers are further intensified by transportation issues, lack of nearby institutions, family responsibilities, and lack of peer support for mobility. In addition, the social stigma associated with withdrawing from programs is likely to prohibit some students from withdrawing even when dissatisfied. Furthermore, even in rural settings, students, and especially girls, can be discouraged from considering other educational routes due to cultural norms (Lysså, 2020). Students are likely to remain enrolled in the institution, even if they are dissatisfied if there are higher switching barriers (such as limited alternatives in the education context, emotional attachments to the institution and financial constraints (Abeysooriya et al., 2024b).

H11. Switching barriers have a negative moderating impact on the relationship between student satisfaction and student retention manifesting that higher the switching barriers lower will be the impact of student satisfaction on student retention in NFE centers.

2.10 Conceptual Framework

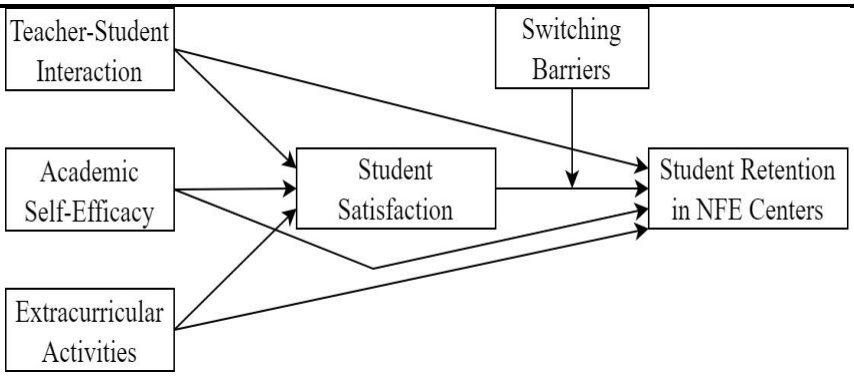

Figure 2.1: Conceptual Framework

FINDINGS AND INTERPRETATIONS

Respondents' Profile

Table 3.1 show the demographic profile of the participants.

Table 3.1: Demographic Profile (n = 558)

		Frequency	***Percent***
Gender	*Male*	*393*	*70.4*
	Female	*165*	*29.6*
Age	*12–14 years*	*98*	*17.6*
	15–17 years	*133*	*23.8*
	18 years and above	*327*	*58.6*
City of NFE Center	*Karachi (Urban)*	*83*	*14.9*
	Sukkur (Urban)	*85*	*15.2*
	Hyderabad (Semi-Urban)	*91*	*16.3*
	Mirpurkhas (Semi-Urban)	*100*	*17.9*
	Larkana (Rural)	*101*	*18.1*
	Jacobabad (Rural)	*98*	*17.6*
Duration of Enrollment in NFE Center	*3–6 months*	*89*	*15.9*
	7–12 months	*138*	*24.7*
	1–2 years	*165*	*29.6*
	More than 2 years	*166*	*29.7*
Educational Level Before Enrolling in NFE	*Never attended school*	*101*	*18.1*
	Dropped out before primary completion	*183*	*32.8*
	Dropped out after primary completion	*274*	*49.1*
Household Monthly Income (in PKR)	*Below 10,000*	*82*	*14.7*
	10,000 – 20,000	*141*	*25.3*
	20,001 – 30,000	*162*	*29*
	Above 30,000	*173*	*31*
Primary Reason for Enrolling in NFE Center	*Never had access to formal education*	*79*	*14.2*
	Financial constraints	*138*	*24.7*
	Dropped out due to personal/family reasons	*180*	*32.3*
	Other	*161*	*28.9*
Parental/Guardian	*No formal education*	*64*	*11.5*

Education Level	*Primary education*	*184*	*33*
	Secondary education	*177*	*31.7*
	Higher education	*133*	*23.8*

ASSESSMENT OF THE MEASUREMENT MODEL

A measurement model describes how latent variables are manifested by their observed indicators, or how constructs are operationalized in quantitative research (Hair et al., 2021).

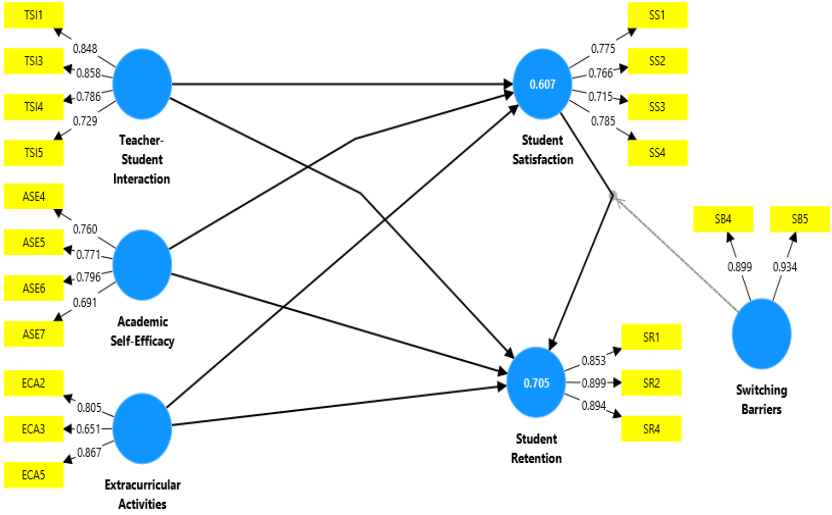

Figure 3.1: PLS Algorithm using Smart PLS

INDICATOR RELIABILITY

Indicator reliability consists of the internal consistency and the strength of measuring each construct; it is determined through standardized factor loadings; values above 0.70 are considered suitable. As indicated in Table 3.2, all item loadings range from 0.651 to 0.934, thus providing satisfactory indicator reliability. Among constructs, switching barriers with loadings at (SB4 = 0.899; SB5 = 0.934) showed highly significant loadings. Student retention with loadings at (SR1 = 0.853; SR2 = 0.899; SR4 = 0.894) and teacher-student interaction with loadings at (TSI1 = 0.848; TSI3 = 0.858) also followed this trend and thus supported the reliability of the observed indicators (Hair et al., 2010).

CONSTRUCT RELIABILITY

Construct reliability, on the other hand, examines the internal consistency of the items inside each construct and is tested by means of Cronbach's Alpha (α) and Composite Reliability (CR). A Cronbach's Alpha

exceeding the threshold of 0.70 generally portrays good internal consistency. As evidenced in Table 3.2, all constructs surpassed this benchmark, and student retention (α = 0.858) followed by switching barriers (α = 0.811) represented the most reliable of all. CR values also went above the suggested 0.70 cut-off for all constructs, with the highest seen again for switching barriers (CR = 0.913) and student retention (CR = 0.913), thereby affirming the robustness and internal consistency of the constructs utilized (Hair et al., 2012).

CONVERGENT VALIDITY

Convergent validity assesses the extent to which items of a construct converge or share a high proportion of variance, which is measured with the Average Variance Extracted (AVE) with some identifying values above 0.50 as acceptable convergent validity (Hair et al., 2022; Hair et al., 2011). All constructs in this study reported values above the acceptable 0.50 threshold of AVE, as highlighted in Table 3.2. In particular, student retention (AVE = 0.778), switching barriers (AVE = 0.839), and teacher-student interaction (AVE = 0.651) have very high AVE values, indicating that the items under these constructs accurately reflect the intended theoretical concept. Therefore, all constructs in the model establish convergent validity.

Table 3.2 provide the results of measurement model using PLS algorithm technique.

Table 3.2: Measurement Model

Construct	*Items*	*Loadings*	*Prob.*	*VIF*	*Alpha*	*CR*	*AVE*
Academic Self-Efficacy	*ASE4*	*0.760*	*0.000*	*1.339*	*0.759*	*0.841*	*0.571*
	ASE5	*0.771*	*0.000*	*1.447*			
	ASE6	*0.796*	*0.000*	*1.674*			
	ASE7	*0.691*	*0.000*	*1.521*			
Extracurricular Activities	*ECA2*	*0.805*	*0.000*	*1.472*	*0.680*	*0.821*	*0.608*
	ECA3	*0.651*	*0.000*	*1.200*			
	ECA5	*0.867*	*0.000*	*1.444*			
Switching Barriers	*SB4*	*0.899*	*0.000*	*1.867*	*0.811*	*0.913*	*0.839*
	SB5	*0.934*	*0.000*	*1.867*			
Student Retention	*SR1*	*0.853*	*0.000*	*2.027*	*0.858*	*0.913*	*0.778*
	SR2	*0.899*	*0.000*	*2.523*			
	SR4	*0.894*	*0.000*	*2.119*			

Student Satisfaction	*SS1*	*0.775*	*0.000*	*1.455*	*0.758*	*0.846*	*0.579*
	SS2	*0.766*	*0.000*	*1.606*			
	SS3	*0.715*	*0.000*	*1.319*			
	SS4	*0.785*	*0.000*	*1.744*			
Teacher-Student Interaction	*TSI1*	*0.848*	*0.000*	*1.760*	*0.824*	*0.882*	*0.651*
	TSI3	*0.858*	*0.000*	*2.112*			
	TSI4	*0.786*	*0.000*	*1.691*			
	TSI5	*0.729*	*0.000*	*1.593*			

Above table showed that indicators have loadings higher than the recommended threshold of 0.70 with probability level and VIF below 5% (Hair et al., 2022; Hair et al., 2011) manifesting that indicators have substantial reliability for achieving construct validity. Moreover, constructs have alpha coefficient and composite reliability higher than the recommended thresholds of 0.70 and 0.80, correspondingly (Hair et al., 2019), construct reliability has been established. Lastly, the table showed that constructs have AVE coefficients higher than 0.50 (Hair et al., 2011, 2013), and thus, it manifested a substantial degree of convergence between indicators and constructs.

DISCRIMINANT VALIDITY

Discriminant Validity seeks to examine the distinctness of different constructs vis-a-vis one another such that each measure coincides with a characteristic and not with others (Ab Hamid et al., 2017). This is evaluated through the Heterotrait-Monotrait (HTMT) ratio, for which values under 0.90 are acceptable (Cheung & Wang, 2017).

HETEROTRAIT-MONOTRAIT (HTMT) RATIO

Table 3.3 shows the result HTMT ratio.

Table 3.3: Heterotrait-Monotrait (HTMT) Ratio

	ASE	***EA***	***SB***	***SR***	***SS***	***TSI***
ASE						
EA	*0.711*					
SB	*0.439*	*0.280*				
SR	*0.594*	*0.900*	*0.319*			
SS	*0.585*	*0.884*	*0.278*	*0.839*		
TSI	*0.234*	*0.312*	*0.280*	*0.367*	*0.665*	

TSI = Teacher-Student Interaction; ASE = Academic Self-Efficacy; EA = Extracurricular

Activities; SS = Student Satisfaction; SR = Student Retention; SB = Switching Barriers

Henseler et al. (2016); Henseler et al. (2015) recommended that the HTMT ratio between two latent constructs should be less than 0.90 in order to establish discriminant validity. The above table showed that the highest HTMT ratio of 0.900 was found among SR and EA, implying that discriminant validity using HTMT ratio has been attained.

PREDICTIVE POWER AND RELEVANCE

Table 3.4 shown the predictive power of the endogenous constructs using PLS Algorithm.

Table 3.4: Predictive Relevance

	R Square	***Q Square***
Student Retention	*0.705*	*0.529*
Student Satisfaction	*0.607*	*0.300*

The results in Table 3.6 reveal strong predictive power and relevance, both toward student retention and student satisfaction. Student retention has strong predictors, with an R^2 value of 0.705 and a Q^2 value of 0.529, which implies that the model explains a major variance of student retention and is highly relevant to prediction. In a parallel capacity, student satisfaction has very predictive power, with an R^2 value of 0.607 and a Q^2 value of 0.300. Findings stated that the model explains a considerable amount of variance, holds adequate predictive relevance for, student satisfaction.

ASSESSMENT OF THE STRUCTURAL MODEL

The structural model illustrates the potential connections among the study's elements. It studies dependent variable effects from independent variables while testing causal paths between variables to gauge the durability of their connections (Hair et al., 2022; Hair et al., 2011). It explores the interplay of many latent variables and how interaction among these latent constructs can account for complex behavioral outcomes. The direct-effect analyses show how a construct directly affects another, along with the relative strength and significance of these direct paths. Some specific indirect effects are evaluated to show how the mediators carry the effect of one particular variable onto another while exposing more internal

mechanisms of interaction. In addition, moderation analysis shows the conditions under which the relationships become amplified or diminished with respect to the context of behavioral patterns (Hair et al., 2011, 2013).

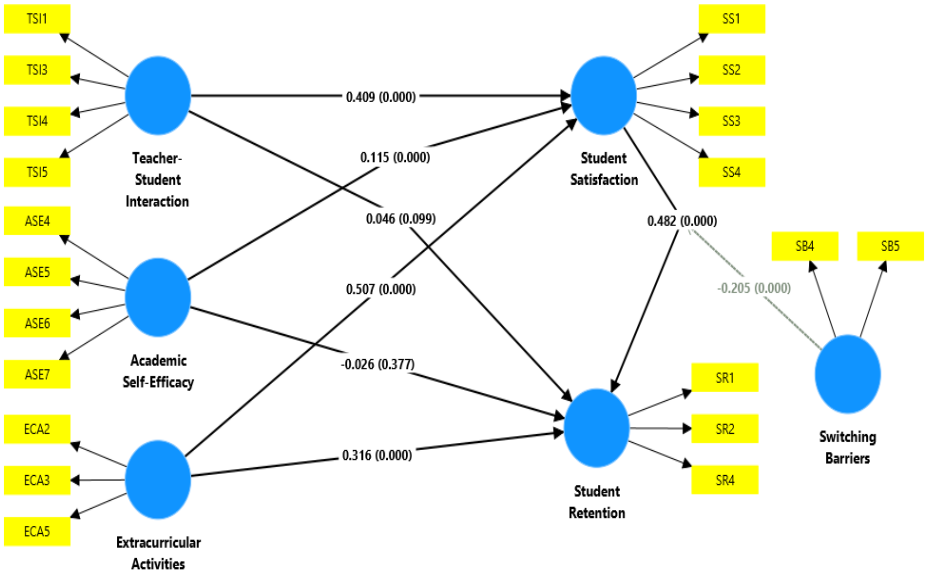

Figure 3.2: PLS Bootstrapping using SmartPLS

DIRECT-EFFECT ANALYSIS

Table 3.5 provide the result of hypothesis testing for direct-effect analysis.

	Estimate	***S. D.***	***t-Stats***	***Prob.***	***Decision***
ASE -> SR	*-0.026*	*0.029*	*0.883*	*0.377*	*Not Supported*
ASE -> SS	*0.115*	*0.028*	*4.127*	*0.000*	*Supported*
EA -> SR	*0.316*	*0.035*	*9.150*	*0.000*	*Supported*
EA -> SS	*0.507*	*0.031*	*16.270*	*0.000*	*Supported*
SS -> SR	*0.482*	*0.040*	*12.081*	*0.000*	*Supported*
TSI -> SR	*0.046*	*0.028*	*1.649*	*0.099*	*Not Supported*
TSI -> SS	*0.409*	*0.024*	*16.811*	*0.000*	*Supported*

TSI = Teacher-Student Interaction; ASE = Academic Self-Efficacy; EA = Extracurricular Activities; SS = Student Satisfaction; SR = Student Retention

The above table showed that ASE (β = -0.026; $p > 0.05$) has a negative and insignificant effect on SR. However, ASE (β = 0.115; $p < 0.05$) has a positive and significant effect on SS. EA (β = 0.316; $p < 0.05$) has a positive and significant effect on SR. Likewise, EA (β = 0.507; $p < 0.05$) has a positive and significant effect on SS. SS (β = 0.482; $p < 0.05$) has a positive

and significant effect on SR. Whereas, TSI (β = 0.046; p > 0.05) has a positive and insignificant effect on SR. Also, TSI (β = 0.409; p < 0.05) has a positive and significant effect on SS.

SPECIFIC INDIRECT-EFFECT ANALYSIS

Table 3.6 provide the result of hypothesis testing for specific indirect-effect analysis.

Table 3.6: Specific Indirect-Effect Analysis using PLS-SEM

	Estimate	***. D.***	***t-Stats***	***Prob.***	***Decision***
TSI -> SS -> SR	*0.197*	*.020*	*9.888*	*0.000*	*Supported*
ASE -> SS -> SR	*0.055*	*.014*	*3.930*	*0.000*	*Supported*
EA -> SS -> SR	*0.245*	*.026*	*9.363*	*0.000*	*Supported*
TSI = Teacher-Student Interaction; ASE = Academic Self-Efficacy; EA = Extracurricular Activities; SS = Student Satisfaction; SR = Student Retention					

The table showed that SS (β = 0.197; p < 0.05) has positive and significantly mediates between TSI and SR. Similarly, SS (β = 0.055; p < 0.05) has positive and significantly mediates between ASE and SR. SS (β = 0.245; p < 0.05) has positive and significantly mediates between EA and SR.

MODERATING EFFECT ANALYSIS

Table 3.6 provide the result of hypothesis testing for moderation effect analysis.

Table 3.6: Moderation Analysis using PLS-SEM

	Estimate	***S. D.***	***t-Stats***	***Prob.***	***Decision***
SB x SS -> SR	*-0.205*	*0.036*	*5.719*	*0.000*	*Supported*
SS = Student Satisfaction; SR = Student Retention; SB = Switching Barriers					

The above table showed that switching barriers (β = -0.205; p < 0.05) has negatively moderates the effect of student satisfaction on student retention. This provides that increasing trend in switching barriers will weaken the effect of student satisfaction on student retention.

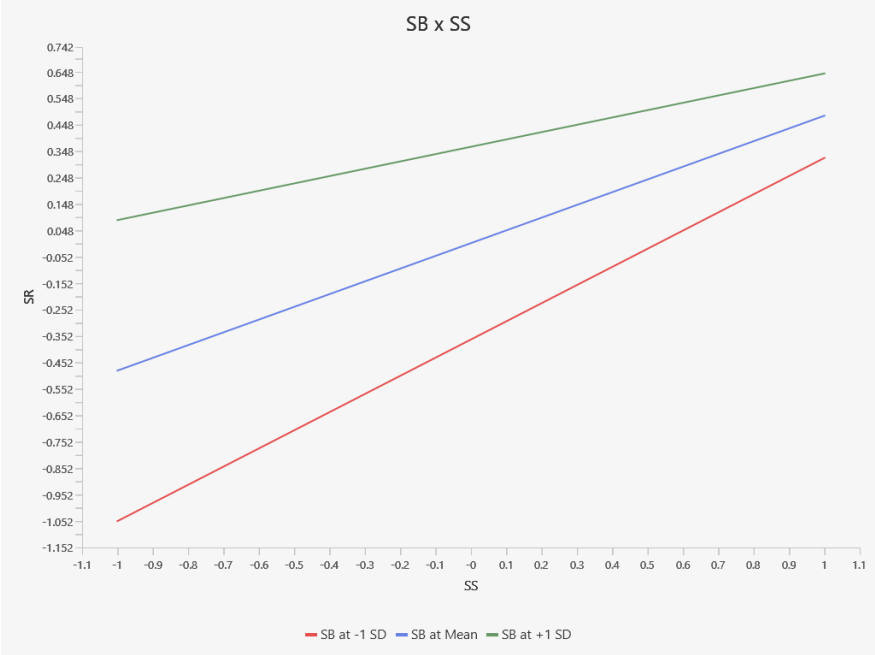

Figure 3.3: Moderation Graph of Switching Behavior between Student Satisfaction and Student Retention

When switching barriers are high for example, when it is difficult to transfer credits, there is a lot of administrative paperwork, or students feel emotionally attached to the institution that positively influence of student satisfaction on retention becomes weaker. Even if students are generally satisfied with their experience, if they feel restricted or trapped by these barriers, their satisfaction is less expected to have an important part in their decision to stay. In such cases, the presence of high switching barriers disrupts or weakens the natural connection between how satisfied students are and whether they choose to continue their studies at the same institution.

CONCLUSION AND RECOMMENDATIONS

CONCLUSION

The research examines how teacher-student interaction, academic self-efficacy, and extracurricular activities influence student retention in NFE centers in Sindh, Pakistan, mediated by satisfaction and moderated by switching barriers. Additionally, the study used a quantitative methodology; explanatory research was used to investigate a selected study topic while making some significant alterations to account for the unidentified

components. The target population of the study have the students taking NFE centers in different districts of Sindh Province, Pakistan. A simple random sampling method was used to choose the respondents for the study and used PLS-SEM to assess a complex modeling framework. Data collection was accomplished through a rapid and comprehensive five-point Likert scale questionnaire as part of the survey method.

The results show that while academic self-efficacy has a negative and non-significant effect on student retention, it has a positive and significant impact on student satisfaction. The value of activities outside of the standard classroom experience in sustaining student engagement was demonstrated by the positive and considerable influence of extracurricular activities on student satisfaction and retention. The teacher-students interaction has found positive and significant affect student satisfaction but had a positive and insignificant effect on student retention. Switching barriers had a direct positive and significant effect on student retention meaning that higher barriers resulted in less likelihood of students leaving. In fact, student satisfaction was also positively and significant correlated to student retention, thus reinforcing the importance of student satisfaction in terms of student retention.

4.2 Recommendations

Drawing on the findings of this research regarding student retention at NFE centers in Sindh Pakistan, the following actionable recommendations are put forth. Firstly, the managers of NFE centers must drive the importance of good relationships between students and teachers by holding periodic workshops that highlight the importance of a student-centered teaching philosophy, communication, empathy, and engagement in the classroom. Educators must be motivated to build classroom environments where students feel respected, heard and inspired. Period classroom observations and feedback to support teachers improve the quality of interactions and help understanding learners' needs can be provided by managers. Similarly, efforts to bolster students' academic self-efficacy should also be intentional by managers. This can be done by incorporating lessons of self-belief and confidence into daily classes. Teachers need to be

sensitized to set reasonable goals for their students, to observe academic progress in even small increments, and to include students in assessing their own learning and progress. It is very important that materials and training are provided by managers so that educators train to have these practices in every class.

Additionally, extracurricular activities should be organized and scheduled in the academic calendar. These activities should not become just for fun but rather developmental activities in a whole person approach-teaming, leadership, creativity, communication skill development etc. Community members can be engaged, NGOs can be partners, and sports, art, drama, debates and awareness campaigns can be organized by the managers. Such activities also lead to improvements in student engagement, motivation, and attendance, all of which support retention in the long term. Satisfaction of students must be seen as fundamental to operations. Managers should implement regular feedback mechanisms, for example anonymous suggestion boxes, monthly student forums, or even satisfaction surveys. In light of this feedback, the school should address from now onward such issues as teaching, infrastructure, working hours of classes, student services, etc. Being responsive to what students are saying fosters trust and makes it more likely that students will remain in the program.

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