

Forecasting and Trend Analysis of Undergraduate Students' Dropout: A Case Study of Sindh Agriculture University, Tando Jam, Pakistan

Qurrat ul Ain Memon¹, M. Javed Sheikh^{1*}, Maryam M. A. Rajput¹,
Qaim Uddin Bahalkani¹

¹ Department of Rural Sociology, Faculty of Agricultural Social Sciences, SAU, Tando Jam, Pakistan.

* **Corresponding Author:** Email: mjsheikh@sau.edu.pk

DOI: <https://doi.org/10.70670/sra.v3i4.1241>

Abstract

Student dropout from universities is a contemporary, complex, and global issue, driven primarily by financial constraints. Nevertheless, local-level trend analysis and forecasting of dropout rates are lacking. Knowing these trends is vital to understanding the problem's intensity and to developing proactive plans to address the challenges. Hence, the researchers studied dropout trends and forecasted future dropout drifts among undergraduate students, using secondary data from 2010-17 batches across various faculties of Sindh Agriculture University (SAU), Tando Jam, Pakistan. After descriptive statistics, moving averages, and Exponential Smoothing (ES) techniques were applied using MS Excel. Findings revealed significant variation across faculties, with the Faculty of Agricultural Engineering (43.52%) and the Institute of Food Science and Technology (43.30%) showing the highest dropout ratios. The dropout rate peaked in 2015 (42.68%) and weakened momentarily in 2016, which may be due to leniency in re-admission policies. Forecasting for 2018-2022 batches, representing possible variations if regular and timely interventions are not made on time. These findings offer valuable insights for policymakers and administrators to consider the dropout issue and strengthen student retention. The study also recommends a few related studies to identify the actual dropout factors among local/University students.

Keywords: Dropout, Forecasting, Sindh Agriculture University, Higher Education

Introduction

Education is a significant force behind social advancement because it equips people with the values, skills, and knowledge they need to grow as individuals and as a community. It is crucial because it reduces the likelihood of unemployment, increases earning potential, and opens doors to career options (Jung, et al., 2024). Globally, knowledge creation, social mobility, and sustainable development are all based on higher education. According to Deardorff et al. (2023), universities play a significant role in developing human capital, advancing economic progress, and strengthening national innovation capacity. As a result, Pakistan's higher education sector has grown rapidly. However, it has also encountered new difficulties, including preserving quality, managing student diversity, and addressing dropout rates (Tariq, 2025) The Pakistani Higher Education Commission (HEC) has been instrumental in improving the quality of higher education by addressing some issues, including outdated teaching methods, low student interest, poverty, gender discrimination, a lack of faculty and academic space, poor research quality, inadequate facilities, and poor infrastructure (Salik, et al., 2014). An effective University is essential for encouraging innovation and equipping graduates with the skills and knowledge needed to address the rapidly changing problems of a world in constant flux (Khatri, et al., 2024). Such institutions not only foster academic excellence and

critical thinking but also cultivate a sense of social responsibility among their students. It implies that graduates are not only equipped to navigate the professional landscape but are also dedicated to making positive contributions to society and tackling global challenges such as sustainability, equity, and social justice (Yang & Kinchin, 2022). Enhancing institutions of higher education is crucial for achieving the inclusive and equitable objectives outlined in Sustainable Development Goal 4 (Canton, 2021). At the same time, University students face various pressures, including career-path uncertainty, interpersonal issues, financial hardships, and academic obstacles. These challenges often emerge during life transitions when changes in living situations, employment, and support systems can exacerbate instability (Gull, et al., 2025). Financial obstacles are among the most significant challenges, as rising tuition costs, inflation, and living expenses force many students to forgo their education (Madai, et al., 2025). Similarly, students from low-income backgrounds are more likely to discontinue their studies to assist their families through work (Aina, 2013). The phenomenon of University dropout is intricate and multifaceted, with students potentially leaving their studies due to social, economic, personal (eg, depression or repeated academic failure), and health-related issues (Mustofa, et al., 2025). The likelihood of students dropping out is typically influenced by factors such as income level, social background, and institutional characteristics (Sabir & Puzic, 2022). This issue is particularly urgent in rural Pakistan, where students frequently face significant financial constraints, inadequate infrastructure, and a scarcity of academic resources. This study sought to analyze dropout trends at SAU, especially at the undergraduate level, to understand the dropout patterns observed in previous cohorts (2010-2017) and to forecast future trends based on available data. The problem of undergraduate student dropouts is a critical issue that has attracted considerable attention at both the University and community levels. Despite ongoing discussions, the fundamental causes and possible solutions remain insufficiently examined, which hinders effective policymaking. By delving deeper into this matter, policymakers can devise more impactful strategies to assist students and enhance academic performance. Sindh Agriculture University (SAU), situated in Tando Jam, was founded on March 1st, 1977, and provides undergraduate, graduate, and doctoral degrees across seven faculties and over 40 departments. Each year, thousands of students are admitted under a 70:30 (rural: urban) quota system, many of them from humble socioeconomic backgrounds. Currently, SAU accommodates approximately 7,000-8,000 scholars across its faculties, which include Crop Production, Crop Protection, Agricultural Social Sciences, Agricultural Engineering, Animal Husbandry and Veterinary Sciences, Information Technology, and Food Science & Technology. (Parker, et al. 2016)

Research Methodology

This research adopted a quantitative strategy utilizing an exploratory research framework, a method extensively engaged in educational trend evaluation and prediction (Sinuany-Stren, 2021). Quantitative research facilitates systematic analysis of numerical penal data to cover trends and associations over time (Parker et al. 2016). The approach was designed to forecast future dropout scenarios using historical data, helping authorities formulate policy initiatives.

The researchers concentrated solely on secondary data sourced from the Examination and Admission Branches of Sindh Agriculture University, Tando Jam. The dataset comprised annual enrollment and graduation records from seven faculties: CPD, CPT, FASS, FAE, AHVS, ITC, and FST, spanning various academic years from 2010 to 2017. The data were initially organized in Microsoft Excel (ME), where yearly enrolment and graduation figures were systematically recorded for each faculty. As a result, dropout ratios emerged or were computed. During trend generation, MS Excel created a line chart showing enrolment against dropout figures over the years. The evaluation patterns predict future trends. Time series analysis is a statistical approach that examines data points collected at regular intervals to identify underlying trends, variances, and cycles (Chiang et al. 2024). For forecasting, the researchers applied the moving average and Exponential Smoothing (ES), two credible and widely used methods for predicting educational and social data (Ostertagova & Ostertag,

2012). The techniques were employed to estimate dropout rates for 2018-2022 using data from 2010-2017. The findings were cross validated using descriptive statistics (frequencies, percentages, and tabular summaries) in SPSS to ensure precision and consistency. This comprehensive methodological approach, combining descriptive statistics, time-series modelling, and forecasting, ensured the reliability and robustness of the results, providing structured and empirical insights into dropout issues at SAU. The methodological rigor strengthens the credibility of the findings and provides a valuable framework (Kumar & Parveen, 2025) for policymakers, administrators, and researchers seeking to address dropout challenges.

Results

The findings showed patterns in students leaving their programs across different undergraduate courses at Sindh Agriculture University, Tando Jam, based on archived data tracking student enrollment, graduation, and dropout rates across seven schools for students who started in 2010 to 2017.

FACULTY	STUDENTS IN	PASS OUT	DROP OUT	
			Frequency	Percentage
CPD	2761	1826	935	33.86
CPT	1427	974	453	31.74
FASS	1209	839	370	30.60
FAE	1351	763	588	43.52
AHVS	1514	1160	354	23.38
ITC	1603	1139	464	28.95
FST	358	203	155	43.30
Overall percentage				32.47

Table 1. Faculty-Wise Dropout Figure of Sau Undergraduate Students (2K10-2K17 Batches)

Table 1 presents the overall scenario of faculty-wise undergraduate students who enrolled and graduated, including the dropout rate for the particular (2010 to 2017) batches at Sindh Agriculture University, Tando Jam. The Faculty of Crop Production (FCPD) recorded the highest number of dropouts (935), while the Institute of Food Science and Technology (IFST) had the lowest (155). The institute is considered equal to the faculty here in the University. IFST had the lowest student enrolment (358), which naturally reduced the high dropout numbers compared to faculties with larger enrolments. On the other hand, the Faculty of Agricultural Engineering (FAE) had a significant dropout rate during the selected batches, with 588 students leaving before completing their degrees. However, the Faculty of Animal Husbandry & Veterinary Sciences (AHVS) had the highest graduation rate, with 1,160 out of 1,514 (about 12 out of 15) students completing their studies. The information on the Faculty of Agricultural Engineering (FAE) and the Information Technology Centre (ITC) indicates that many students are leaving their courses before completing them, suggesting several underlying issues. These issues may be related to their academic performance, personal circumstances, financial difficulties, or problems within the institution.

Figure 1 presents a detailed view of the number of students enrolled and those who dropped out over several years, from the 2K10 batch to the 2K17 batch. This data helps us understand how the number of students changed over time and how the rate of student departure fluctuated during this period. In 2K10, the number of students enrolled was 1404. However, this number gradually decreased over the following years, reaching a low point of 1103 in 2K13. After that, the number of new students started increasing again, reaching a high of 1373 in 2K15, then settling down to around 1321 by 2K17. Looking at the dropout rates, they remained relatively constant over the years, but there was a significant spike in 2K15, with a dropout rate of 42.68, the highest recorded during this period. The following year, in 2K16, the dropout rate dropped considerably to 13.57, but then it went up again in

2K17 to 32.17. Interestingly, there were some years when the trends in enrolment and dropout rates moved in opposite directions. For example, in 2K15, while the number of students enrolled increased, the dropout rate reached its peak.

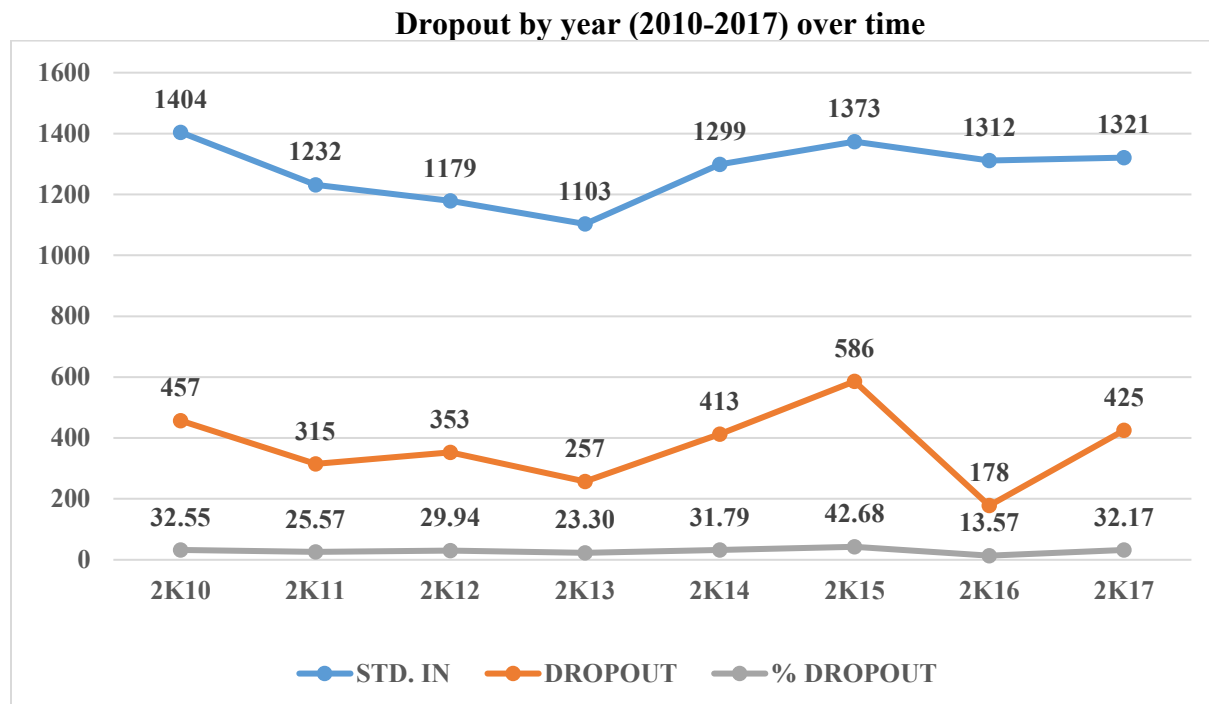


Figure 1. Faculty-Wise Dropout Figure of Sau Undergraduate Students (2K10-2K17 Batches)

This kind of variation suggests that other factors may have influenced these trends, such as challenges within the institution, financial issues, or changes in academic policies. By analyzing these patterns, we can see different periods in which the number of students declined, recovered, or stabilized. These insights are based on actual data and can help University leaders make informed decisions. They can use this information to create more effective support systems and strategies to reduce student dropouts and improve overall retention rates.

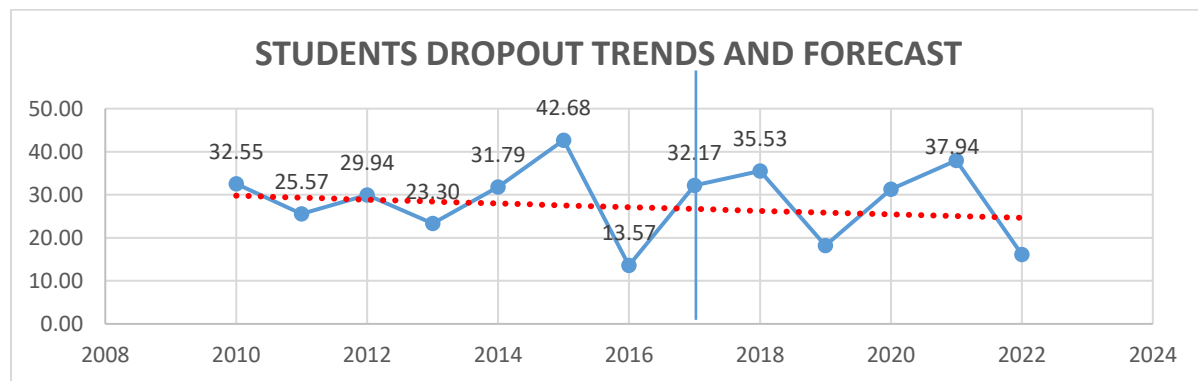


Figure 2. Forecasting

This thorough examination examines how many undergraduate students left Sindh Agriculture University in Tando Jam between 2010 and 2017, and includes predictions up to 2022. The graph accompanying this analysis uses two lines to show the data: one is a solid blue line showing the actual number of students who dropped out each year, and the other is a red dotted line showing the overall trend, which has been gradually declining over the years. A straight vertical line clearly separates the historical data from the forecasted data, making it easier to see where the real numbers end and the

predictions begin. The dataset includes all the University's departments (CPD, CPT, FASS, FAE, AHS, ITC, and FST), providing a complete picture of how well students are staying in their studies across all fields. Looking at the main points in the data, it shows that the number of students coming in, finishing their courses, and leaving changed every year. For example, in 2010, the University had 1,404 students, of whom 947 graduated, leaving 457 who dropped out. The following year, the number of students coming in was lower, at 1,232, with 917 graduating and 315 dropping out. This pattern persisted, with minor changes each year, showing how student retention can fluctuate over time. One important year in this period was 2015, which had the highest dropout rate. In that year, 1,373 students were enrolled, but only 786 graduated, leaving 586 students. This considerable increase in dropouts might be due to several factors, such as problems with the studies, issues with the university's management, or challenges stemming from students' personal lives.

In contrast, in 2016, there was a significant drop in the number of students leaving, with only 178 dropouts. It could be because of a new policy that allowed students who had already dropped out to come back and continue their studies if they paid the fees they owed. Such policies can help more students finish their courses in the short term, but they might not have a lasting effect. The time series analysis shows that the number of students dropping out varies over time and is influenced by several factors, including the university's rules, the state of the economy, and the support systems available to students. The predicted data for 2018 to 2022 indicate that these changes in dropout rates are likely to continue, underscoring the importance of the university having policies that support students who are having a hard time. Keeping or improving these policies can lead to a more stable decline in student departures, which in turn can improve how well the University retains students and helps them graduate. Overall, understanding these trends is really important for University leaders, as it helps them make smart decisions to create programs that better support students and reduce the number of students who leave before finishing their studies.

Discussion

Nationally, Pakistan is facing a significant issue of students leaving their studies before completing their education, with an average dropout rate of 25% to 30%, according to a report by Sihare (2024). Students in this country are especially impacted by financial difficulties and a lack of strong institutional support, as highlighted by Abbasi (2021). On a global scale, dropout rates remain relatively high, with South America reporting up to 54%, the United States around 40%, and many countries in Europe also experiencing dropout rates exceeding 40%, as per the findings. In comparison, the situation at Sindh Agriculture University, Tandojam, regarding undergraduate students appears more manageable, with the data showing even better outcomes. The dropout patterns among undergraduate students at this University vary by faculty and academic year. For example, larger faculties such as the Faculty of Crop Production (FCPD) and the Faculty of Agricultural Engineering (FAE) tend to have higher dropout rates. Similarly, the Institute of Food Science and Technology (IFST) reports a higher dropout rate than other departments. This pattern matches the student attrition model proposed by Bean (1980), which demonstrates that students' decisions to leave their studies are often influenced by their satisfaction with the institution, their academic performance, and the level of support they perceive they are receiving. In larger faculties, where there is typically less direct interaction between students and teachers and administrative challenges, students may feel less supported, increasing the likelihood of dropping out. It suggests that larger faculties may encounter particular difficulties in retaining students, possibly due to increased academic demands, limited resources, or other institutional challenges. Looking at the data, there is a noticeable peak in the dropout rate during 2015, reaching 42.68%. However, this was followed by a sharp decline to 13.57% in 2016. The drop in dropout rates during that period could be attributed to institutional efforts, such as policy changes that enabled students to re-enter their studies by clearing their fees, giving them a second chance to continue their education. Such policies can serve as temporary solutions to reduce dropout rates, particularly when financial barriers are addressed.

Nevertheless, the increase in dropout rates in 2017 points out that these temporary interventions have their own limitations. The rising rate suggests that, without ongoing, comprehensive strategies, the deep-rooted problems driving student dropouts remain unresolved. Factors such as academic support, counseling services, financial assistance, and student involvement are crucial to evaluating and addressing long-term student retention.

Consistent with Astin's (1999) theory of student involvement, students who devote more time and effort to both academic and social activities are more likely to remain enrolled and complete their studies. As a result, educational institutions have a responsibility to create an environment that encourages active participation and engagement. It can be done through various means, such as offering mentorship programs, organizing co-curricular activities, and promoting learning experiences that involve students in meaningful ways (Mouton, et al., 2020). When it comes to reducing dropout rates, institutions should focus on a comprehensive, well-rounded strategy rather than addressing surface-level issues. It includes improving the quality of academic advising, upgrading campus facilities to support student life, offering financial aid targeted to students in need, and creating an academic environment that is both supportive and inclusive. It is also important to continuously monitor and evaluate these initiatives to ensure they are working effectively and to adjust them as needed in response to students' evolving needs (Altın-Gök & Yorulmaz, 2025).

In summary, although short-term policies may help lower dropout rates temporarily, long-term success depends on a multifaceted approach that tackles the underlying reasons why students leave (Devi, 2020). By implementing comprehensive and inclusive retention strategies, Sindh Agriculture University can enhance student success and build a more resilient, thriving academic community. SAU's patterns mirror these larger trends but are also uniquely influenced by differences between rural and urban areas, financial constraints, and limited career opportunities in agriculture. These results align with Tinto's (1993) model of student integration, which emphasizes that both academic and social integration are key factors in helping students remain enrolled. When students feel out of place or isolated in either their studies or social life, they are more likely to leave the institution (Neupane, 2024). The absence of organized academic guidance and the lack of opportunities for students to connect with peers at SAU might be worsening the issue of student dropouts. The problem of students leaving SAU is a deep-rooted challenge that needs both quick and lasting changes. Adaptable re-admission policies can provide short-term relief, but sustainable solutions demand curriculum modernization, targeted financial aid, stronger academic support, and industry linkages (Gull, et al., 2025). For policymakers, these findings underscore the need to develop retention strategies tailored to the specific needs of rural universities. In such institutions, students often face greater financial and career-opportunity challenges than their counterparts in urban universities, making it even more crucial to implement approaches that effectively address these unique obstacles.

Conclusion

By combining historical trend analysis with forecasting, this study provides evidence-based insights and concludes that the global student dropout phenomenon also occurs at Sindh Agriculture University, Tando Jam, Pakistan. Compared with some advanced countries' universities, the data on undergraduate students' dropout rates at Sindh Agriculture University, Tandojam, Pakistan, are not particularly alarming. However, the frequency of such students may increase at any time if specific measures are not taken. Knowing the reasons, whether under local settings or the culture at large, will guide practical policy interventions. Further, dropout trends will likely persist with periodic spikes; yet, some consistent policies or periodic spikes are required to maintain, keeping in mind that adopting proactive, socio-economic, student-oriented, and gender-based strategies/policies could ensure inclusivity and retention, especially students from rural backgrounds, as per approved/existing policies.

Recommendations

- **Enhance financial support:** The University should provide scholarships, interest-free loans, and instalment-based fee payments, particularly targeting students from rural and low-income backgrounds who are most at risk of dropping out.
- **Strengthen academic flexibility:** Faculty may reduce some unnecessary course load, ensure timely feedback, and adopt flexible grading policies to ease academic pressures.
- **Introduce a clear dropout policy:** The administration should establish a well-defined policy that allows students to temporarily pause their studies and return through a simplified re-admission process, as this is currently missing from the policy.
- **Expand access strategically:** To ensure sustainable growth, admissions should be expanded by approximately 20 to 30 percent to offset students who may leave the program. However, this expansion should also be announced, taking into account physical facilities, the quality and availability of teaching staff, and the range of support services provided to students.
- **Career counselling and motivational lectures:** The University's student support office or a faculty advisor should hold regular meetings or sessions to help students manage academic stress, explore career paths, and build confidence in their abilities.
- **Demand-based programs/course content:** The administration should regularly update courses to align with market needs and emerging agricultural technologies to enhance graduates' employability.
- **Encouraging merit:** Setting a cap on the number of students or spreading admissions equally across areas can help reduce the number of students dropping out of school. These measures foster inclusivity, promote diversity, and contribute to the development of a more equitable education system that benefits all stakeholders involved.
- **Monitoring and evaluation:** Regular assessment and adjustments are necessary to ensure that the policies remain relevant and effective in reducing dropout rates.

References

- Abbasi, Y., 2021. *Dropout rate alarms education ministry*, Karachi: The Express Tribune.
- Aina, C., 2013. Parental background and university dropout in Italy. *Higher Education*, 65(1), pp. 437-456.
- Altın-Gök, E. & Yorulmaz, O., 2025. Psychological Intervention Studies on The Adaptation of International Students: A Systematic Review. *International Journal of Psychology and Educational Studies*, 12(2), pp. 104-118.
- Astin, A. W., 1999. Student involvement: A developmental theory for higher education. *Journal of College Student Personnel*, 25(4), pp. 297-308.
- Bean, J. P., 1980. Dropouts and turnover: The synthesis and test of a causal model of student attrition. *Research in higher education*, 12(2), pp. 155-187.
- Canton, H., 2021. United nations educational, scientific, and cultural organization—UNESCO. In: 23rd, ed. *The Europa Directory of International Organizations*. s.l.:Routledge, pp. 359-365.
- Chiang, S., Zito, J., Rao, V. R. & Vannucci, M., 2024. Time-series analysis. In: *Statistical methods in epilepsy*. s.l.:Chapman and Hall/CRC, pp. 166-200.
- Deardorff, D. K., De Wit, H., Leask, B., & Charles, H. (2023). *The handbook of international higher education*. 2nd ed. London (UK): Taylor & Francis.
- Devi, S. P., 2020. Cultural characteristics and college dropout. *International Journal of Indian Psychology*, 8(1), pp. 195-202.
- Gull, M. et al., 2025. A Comprehensive Review of Psychosocial, Academic, and Psychological Issues Faced by University Students in India. *Annals of Neurosciences*.
- Hanson, M., 2021. *College dropout rates*, s.l.: Education Data Initiative.

- Jafar, S. et al., 2021. Factors contributing to dropout from public-sector primary schools in Vehari, Pakistan. *The Journal of Social Sciences Advancement*, 59(1), p. 63.
- Jung, J., Wang, Y., & Sanchez Barrioluengo, M., 2024. A scoping review on graduate employability in an era of 'Technological Unemployment. *Higher Education Research & Development*, 43(3), pp. 542-562.
- Karunarathna, I., Gunasena, P., Hapuarachchi, T. & Gunathilake, S., 2024. The crucial role of data collection in research: Techniques, challenges, and best practices. *Uva Clinical Research*, pp. 1-24.
- Khatri, P. et al., 2024. Student well-being in higher education: Scale development and validation with implications for management education. *The International Journal of Management Education*, 22(1).
- Kumar, A. & Praveen, K. S. G., 2025. *Research methodology...* s.l.:Authors Click Publishing.
- Madai, T. B., Chand, R. B., Sapkota, S. P. & Pant, D. R., 2025. Student Dropout Trends and Causes in Higher Education: The Case of Kailali Multiple Campus. *KMC Journal*, 7(1), pp. 234-249.
- Mouton, D., Zhang, H. & Ertl, B., 2020. German University students' reasons for dropout. Identifying latent classes. *Journal for Educational Research Online*, 12(2), pp. 190-224.
- Mustofa, S. et al., 2025. A novel AI-driven model for student dropout risk analysis with explainable AI insights. *Computers and Education: Artificial Intelligence*, 8(1).
- Neupane, B., 2024. Causes of Dropout in Higher Education: An Analysis of Student Dropouts in Bachelor of Education from Marsyangdi Multiple Campus. *Marsyangdi Journal*, 4(1), pp. 1-14.
- OECD, 2010. *Education at a Glance 2010 Key results*, s.l.: s.n.
- Ortiz-Lozano, J. M., Rua-Vieites, A., Bilbao-Calabuig, P. & Casadesús-Fa, M., 2020. University student retention: Best time and data to identify undergraduate students at risk of dropout. *Innovations in education and teaching international*.
- Ostertagova, E. & Ostertag, O., 2012. Forecasting using simple exponential smoothing method. *Acta Electrotechnica et Informatica*, Volume 3, p. 62.
- Palacio Sprockel, L. E., Vargas Babilonia, J. D. & Monroy Toro, S. L., 2020. Análisis bibliométrico de estudios sobre factores socioeconómicos en estudiantes universitarios. *Educación y Educadores*, 23(3), pp. 355-375.
- Parker, E. O., Chang, J., & Thomas, V., 2016. A Content Analysis of Quantitative Research in Journal of Marital and Family Therapy: A 10-Year Review. *Journal of Marital and Family Therapy*, 42(1), pp. 3-18.
- Pérez, B., Castellanos, C. & Correal, D., 2018. *Predicting student dropout rates using data mining techniques: A case study*. s.l., Cham: Springer International Pub, pp. 111-125.
- Reddy, D. & Pulluru, K., 2024. *Principles Of Statistics & Research Methodology*. s.l.:Academic Guru Publishing House.
- Sabic, J. & Puzic, S., 2022. Exploring dropout risk in higher education in Croatia: An empirical analysis. *Issues in educational research.*, 32(3), pp. 1153-1173.
- Salik, M., Zhu, Z. & Liu, B., 2014. Sociology of higher education: A case study of Pakistan. *European Journal of Research in Social Sciences*, 2(3).
- Schmitt, J. et al., 2021. WWH-dropout scale: when, why, and how to measure propensity to drop out of undergraduate courses. *Journal of Applied Research in Higher Education*, 13(2), pp. 540-560.
- Sihare & R, S., 2024. Student Dropout Analysis in Higher Education and Retention by Artificial Intelligence and Machine Learning. *SN Computer Science*, 5(2), p. 202.
- Sihare, S. R., 2024. Student Dropout Analysis in Higher Education and Retention by Artificial Intelligence and Machine Learning. *SN Computer Science*, 5(2), p. 202..

- Singh, A. S. & Masuku, M. B., 2014. Sampling techniques & determination of sample size in applied statistics research: An overview. *International Journal of Economics, Commerce and Management*, 2(11), pp. 1-22.
- Sinuany-Stern, Z., 2021. Forecasting methods in higher education: An overview. In: *Handbook of Operations Research and Management Science in Higher Education*. s.l.:, pp. 131-157.
- Soons, J. P., Liefbroer, A. C. & Kalmijn, M., 2009. The long-term consequences of relationship formation for subjective well-being. *Journal of Marriage and Family*, 71(5), pp. 1254-1270.
- Tariq, M. U., 2025. Sustainability of Quality Processes in Higher Education: Strategies for Continuous Improvement. In: *Higher Education and Quality Assurance Practices*. s.l.:IGI Global Scientific Publishing, pp. 305-334.
- Tinto, V., 1993. *Leaving college: Rethinking the causes and cures of student attrition*. 2nd ed. Chicago, IL: University of Chicago Press.
- Yang, J. & Kinchin, G., 2022. University as a Site to Learn Citizenship from the Perspectives of Students in the UK. *Sustainability*, 14(3), p. 1939.
- Zakhidov, G., 2024. Economic indicators: tools for analyzing market trends and predicting future performance. *International Multidisciplinary Journal of Universal Scientific Prospectives*, 2(3), pp. 23-29.