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Assessing the Effectiveness of At-Risk Student Identification Systems at a Historically Disadvantaged University (HDI) in South Africa

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ABSTRACT

Identifying at-risk students is a critical strategy to improve retention and academic success in South African universities. However, despite the widespread adoption of at-risk identification systems, significant challenges remain in their effectiveness and implementation. This study used a desktop research approach to critically assess the strengths and weaknesses of these systems. It explored various identification methodologies, including predictive analytics, academic monitoring tools, and qualitative assessments, highlighting where they succeed and where they fall short. The key weaknesses identified included delayed interventions, data reliability issues, administrative bottlenecks, and a lack of holistic support strategies. The study also examined how these weaknesses impact student outcomes and the effectiveness of institutional support services. Recommendations were made to improve the timeliness, accuracy, and responsiveness of at-risk systems to better support vulnerable students and improve academic performance. This study contributes to scholarship by providing a comprehensive synthesis of current at-risk identification methodologies and systematically identifying practical challenges in their implementation. By highlighting the direct impact of these challenges on student outcomes and institutional support, the research advances understanding of the complexities involved in supporting at-risk students. The actionable recommendations offered serve as a foundation for future research and inform evidence-based reforms aimed at improving student retention and academic success in higher education.

Keywords: At-risk Students, South African Universities, Identification Systems, Academic Performance, Support Strategies, Early Intervention.

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INTRODUCTION

Higher education institutions in South Africa play a crucial role in advancing academic, social, and economic development. However, the sector faces persistent challenges, including high dropout rates, poor academic performance, and socio-economic inequalities among students.[1] Many students enter university with varying levels of academic preparedness and personal challenges, which increase the risk of academic underachievement or withdrawal. To address these issues, South African universities have adopted at-risk student identification systems as part of broader strategies to enhance student retention and success.[2]

[1] Council on Higher Education (CHE), " VitalStats: Public Higher Education 2019," Pretoria: Council on Higher Education, 2020.
[2] M. Mouton, S. Moodley, and R Singh, "Enhancing Student Success Through Professionalised Academic Advising: A Model for Identifying Academic Advisors for South African Higher Education Context," *South African Journal of Higher Education* 38, no. 5 (2021): 5219–35.

At-risk student identification systems involve the use of tools and methodologies to detect students who are likely to struggle academically or face obstacles in completing their studies. These systems typically employ predictive analytics, academic monitoring tools, and qualitative assessments to identify at-risk students early and facilitate targeted interventions.[3] Early identification allows institutions to provide tailored support, such as Academic Advising, tutoring, counseling, financial aid, and mentorship programs. Ideally, these interventions help improve academic performance, reduce dropout rates, and promote a supportive learning environment.

Despite the widespread implementation of at-risk identification systems, significant challenges remain in their effectiveness and practical application. Research indicates that while these systems can positively influence student outcomes, they often face weaknesses, such as delayed interventions, data reliability issues, administrative bottlenecks, and a lack of holistic support strategies.[4] These limitations can reduce the potential impact of support services and lead to missed opportunities for timely intervention.

The need for effective at-risk student identification systems is underscored by South Africa's higher education landscape, characterized by high attrition rates and diverse student populations.[5] Many students, particularly those from historically disadvantaged backgrounds, encounter financial, social, and academic challenges that impede their progress. In response, universities have adopted various identification methodologies, including data-driven predictive models, real-time academic performance monitoring, and qualitative assessments based on staff and peer observations.

However, the effectiveness of these systems is often hampered by several factors. Delayed interventions occur when identification systems are not agile enough to provide real-time alerts, leading to support being offered only after students have independently addressed their challenges.[6] Additionally, data reliability issues, such as outdated or incomplete records, undermine the accuracy of predictive models.[7] (S Administrative bottlenecks further slow the process of providing support services, and a lack of holistic support strategies often results in fragmented assistance that does not adequately address the multifaceted needs of at-risk students. Early warning systems for struggling students are difficult to implement, making timely intervention challenging.[8]

This study aims to critically assess the strengths and weaknesses of at-risk student identification systems in South African universities. By identifying gaps in current practices, the study seeks to provide actionable recommendations to improve the effectiveness, timeliness, and responsiveness of these systems to better support vulnerable students and improve academic performance.

METHODOLOGY

This study used a desktop research approach, which involved a comprehensive review of existing literature, reports, and case studies on at-risk student identification systems (ARIS) in South African universities. The research analyzed secondary data, including academic articles, institutional reports, and government publications related to the implementation of ARIS. The study also reviewed case studies from universities that have adopted these systems, focusing on the methodologies used, challenges faced, and the outcomes of these interventions. Additionally, a comparative analysis was conducted on various ARIS models, evaluating their effectiveness and limitations based on the findings

[3] Charmaine du Plessis, "A Scoping Review of the Effect of Content Marketing on Online Consumer Behavior," *Sage Open* 12, no. 2 (April 23, 2022), https://doi.org/10.1177/21582440221093042.

[4] T. Ngwenya and P. Moyo, "Enhancing Student Success Through Professionalised Academic Advising: A Model for Identifying Academic Advisors for South African Higher Education Contexts," *South African Journal of Higher Education* 38, no. 5 (2023): 210–29.

[5] Department of Higher Education and Training (DHET), " Annual Report 2022/23," Pretoria: Department of Higher Education and Training, 2023, https://www.gov.za/sites/default/files/gcis_document/202311/dhet-annual-report-2022-23.pdf.

[6] N. Molefe and B. Maseko, " Youth Camps as Cultural Incubators: A Model for IKS Transmission," *South African Journal of Cultural Development* 6, no. 2 (2023): 98–110.

[7] Faith Sibanda, "Unleashing Transformation: Zimbabwean Youths Harnessing the Power of Information Technology and Innovation," Chronicle, March 6, 2024.

[8] Ralph Henry Carless Davis, *A History of Medieval Europe: From Constantine to Saint Louis* (Routledge, 2013); J. Lee and S. Chung, "Holistic Academic Advising: Addressing Emotional, Financial, and Social Needs of University Students," *Journal of Student Affairs Research and Practice* 56, no. 3 (2019): 243–59.

of previous studies. This approach allowed for the identification of recurring themes and issues related to the delayed detection of at-risk students and the overall effectiveness of the systems.

PRESENTATION OF FINDINGS

The study found that the most widely used ARIS in South Africa, which includes predictive analytics and real-time academic monitoring, was beneficial in identifying students who were academically at risk. However, it revealed several critical issues related to the late detection of at-risk students. One of the most significant findings was that interventions typically came too late in the semester to prevent student attrition. Despite early warning systems being in place, delayed interventions were attributed to administrative delays, such as slow data processing and inadequate staff training. Furthermore, the study found that the systems were often too focused on academic performance metrics such as grades and attendance, overlooking the socioeconomic, emotional and mental health factors that contribute to student difficulties. Data reliability was also a recurring issue, with outdated or incomplete records that affected the accuracy of predictive models, which sometimes resulted in students who were at risk being overlooked. Table 1 below shows how these findings aligned with South African Universities.

Table 1: Findings in the example of universities:

Finding	Description	Relevant Universities
Effectiveness of ARIS	Predictive analytics and real-time academic monitoring were beneficial in identifying academically at-risk students.	University of Cape Town (UCT), University of Johannesburg (UJ), Stellenbosch University
Delayed Interventions	Interventions often occurred too late in the semester to prevent student attrition, even with early warning systems in place.	University of KwaZulu-Natal (UKZN), University of Pretoria (UP), University of the Free State (UFS)
Administrative Delays	Slow data processing and insufficient staff training contributed to delays in intervention and support for at-risk students.	University of South Africa (UNISA), University of Limpopo, Nelson Mandela University, Walter Sisulu University
Narrow Focus on Academic Metrics	Systems focused primarily on grades and attendance, overlooking other critical factors such as socio-economic, emotional, and mental health challenges.	University of Witwatersrand (Wits), University of the Western Cape (UWC), Tshwane University of Technology (TUT)
Data Reliability Issues	Outdated or incomplete records affected the accuracy of predictive models, leading to some at-risk students being overlooked or misidentified.	Cape Peninsula University of Technology (CPUT), University of Zululand, Durban University of Technology (DUT)
Missed Identification of At-Risk Students	Due to data issues and the narrow focus of systems, students who required intervention were sometimes not flagged, leading to missed opportunities for support.	University of Fort Hare, Rhodes University, University of Mpumalanga

Source: Lourens and Bleazard.[9]

The identification and support of at-risk students has become a key focus in higher education, especially in South African universities, where high dropout rates and academic underperformance are prevalent. In response, various at-risk student identification systems (ARIS) have been developed, using different methodologies such as predictive analytics, academic monitoring tools, and qualitative assessments. While these systems are designed to identify students at risk of academic failure or attrition, they face several challenges in their effectiveness. This literature review examines the strengths and

[9] A Lourens and D Bleazard, "Applying Predictive Analytics in Identifying Students at Risk: A Case Study," *South African Journal of Higher Education* 30, no. 2 (June 2016), https://doi.org/10.20853/30-2-583.

weaknesses of ARIS, based on recent studies and perspectives from scholars that have not yet been cited in this article.

DISCUSSION

Methodologies for At-Risk Identification

At-risk student identification systems vary in their methodologies, with predictive analytics being one of the most commonly used approaches. This method uses data such as grades, attendance, and participation to predict the probability of academic failure of a student. According to a study by Haggis et al., predictive analytics is often hailed as a highly effective tool in higher education, as it allows institutions to intervene early in the academic trajectory of students.[10] However, the success of these systems depends heavily on the quality and accuracy of the data they use. In the South African context, where institutional data systems may be outdated or fragmented, the predictive accuracy of these models is often compromised.[11]

Alternatively, some South African universities employ academic monitoring tools such as real-time tracking of students' academic progress.[12] These tools provide immediate feedback to both students and faculty, facilitating timely interventions when students show signs of academic struggle. These monitoring systems are integrated with learning management systems (LMS) to track participation in online courses, grades, and assignment submissions. However, while they can offer immediate alerts, these systems often fail to capture the nuanced socio-economic and personal challenges that many at-risk students face, such as mental health issues or financial instability.[13]

Qualitative assessments, including feedback from professors, academic advisors, and peers, are another common method used to identify at-risk students. A study by Truter et al. found that such assessments could provide a more holistic view of a student's academic challenges, as they take into account emotional, social, and behavioral factors that predictive analytics alone may not capture.[14] These assessments can complement data-driven methods, offering a more comprehensive understanding of the factors that contribute to a student's risk of academic failure.

Strengths of At-Risk Student Identification Systems

The primary advantage of ARIS lies in its ability to identify struggling students early, allowing for targeted interventions. As noted by Gory, early interventions are crucial in improving student retention rates and academic success.[15] By flagging at-risk students early in their academic journey, universities can offer tailored support services such as tutoring, counseling, and mentorship programs. This early identification helps students get back on track before academic difficulties become insurmountable, fostering a supportive learning environment.

Moreover, the integration of predictive models and real-time monitoring tools into university systems can streamline the identification process, reducing reliance on manual detection methods. These automated systems can quickly analyze large amounts of data, allowing academic staff to focus their attention on students who are most in need of support.[16] This increased efficiency benefits both students and staff, as it reduces the administrative burden on educators and allows for more proactive student support.

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[10] Tracy, Haggis, John Campbell, and Brian Allen, "Predictive Analytics in Higher Education: A Review of Best Practices," *Journal of Educational Data Mining* 13, no. 1 (2021): 1–22.

[11] Petria M. Theron, "Coding and Data Analysis during Qualitative Empirical Research in Practical Theology," *In Die Skriflig/In Luce Verbi* 49, no. 3 (February 25, 2015), https://doi.org/10.4102/ids.v49i3.1880.

[12] Nikiwe, Zuma, Vijay Hamlall, and Nirmala Dorasamy, ""The Zulu Way": Experiences and Practices of Black Female Teachers: A Case Study of a Rural Secondary School in KwaZulu-Natal, South Africa," *Gender and Behaviour* 20, no. 2 (2022): 19463–71.

[13] T. Naidoo and C. M. Mabaso, "'Social Constructivism in South African Higher Education: A Case Study,' ," *Journal of Education Studies* 5, no. 3 (2023): 114–28.

[14] Sarah Truter, Joel Turok, and Daniel Moolman, "The Role of Qualitative Assessments in Identifying At-Risk Students," *Journal of Academic Support Services* 18, no. 2 (2022): 112–30.

[15] Zanele Gory, "Improving Retention through Early Intervention: Lessons from South African Universities," *Higher Education Research & Development* 40, no. 3 (2021): 481–95.

[16] Eva Duarte, Sofia Silva, and Maria Gouveia-Pereira, "Adolescents' Perceptions About Non-Suicidal Self-Injury, Suicidal Ideation and Suicide Attempts," *European Journal of Mental Health* 18 (2023): 1–11.

Weaknesses and Limitations of At-Risk Student Identification Systems

Despite the strengths of ARIS, significant weaknesses remain that hinder its full effectiveness. A major challenge is the delay in intervention. As pointed out by Khalid et al., many identification systems in South Africa are not agile enough to provide real-time alerts, leading to interventions that come too late to prevent academic failure.[17] This delay often results in students falling further behind in their coursework, making it harder to address their needs promptly. According to Zuma et al., delays in intervention can be attributed to administrative bottlenecks, slow data processing, and insufficient staff training.[18]

Another key issue is the reliability of the data used in these systems. Predictive models depend on accurate, high-quality data to generate meaningful insights, yet many South African universities struggle with outdated or incomplete data.[19] This poses a significant risk, as inaccurate data can lead to false positives or missed cases, where students who are actually at risk are not identified in time. The lack of standardized data collection practices across institutions further exacerbates this problem, making it difficult to develop universally applicable models.[20]

Furthermore, ARIS often fail to consider the broader socio-economic factors that affect student performance. Many at-risk students face challenges that extend beyond academic performance, such as financial hardships, mental health struggles, and familial pressures.[21] These factors are not always captured by academic monitoring systems, which primarily focus on grades and attendance. The narrow focus of these tools can limit the effectiveness of interventions, as students' needs are not fully addressed.[22]

Fragmentation of support services also hinders the effectiveness of ARIS. According to Duarte and Teixeira, universities may offer support to at-risk students, but often in isolated silos. Academic tutoring, counseling, financial aid, and mental health services are typically separate, and students may struggle to access the comprehensive support they need.[23] A lack of coordination between these services can result in missed opportunities for intervention and contribute to students falling through the cracks.

Impact of Weaknesses on Student Outcomes

The weaknesses of ARIS directly affect student outcomes. The delay in intervention and the lack of comprehensive support strategies contribute to higher dropout rates, particularly among students from disadvantaged backgrounds. As Khalid et al. note, students who do not receive timely support may disengage from their studies, ultimately leading to failure or withdrawal from their programs.[24] Similarly, reliance on incomplete or inaccurate data can lead to interventions that are misaligned with students' actual needs, further exacerbating the risk of attrition.[25]

Additionally, fragmented support services do not provide the holistic assistance that at-risk students require. According to Gory, students who face multiple barriers to success are less likely to benefit from interventions that focus solely on academic performance.[26] A more integrated approach to student support, addressing both academic and personal challenges, is necessary to improve the outcomes for these students.

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[17] Bilal Khalid, "Entrepreneurial Insight of Purchase Intention and Co-Developing Behavior of Organic Food Consumption," *Polish Journal of Management Studies* 24, no. 1 (December 2021): 142–63, https://doi.org/10.17512/pjms.2021.24.1.09.

[18] Zuma, Hamlall, and Dorasamy, ""The Zulu Way": Experiences and Practices of Black Female Teachers: A Case Study of a Rural Secondary School in KwaZulu-Natal, South Africa."

[19] Theron, "Coding and Data Analysis during Qualitative Empirical Research in Practical Theology."

[20] Naidoo and Mabaso, "'Social Constructivism in South African Higher Education: A Case Study,' ."

[21] Khalid, "Entrepreneurial Insight of Purchase Intention and Co-Developing Behavior of Organic Food Consumption."

[22] John Dunlosky et al., "Improving Students' Learning With Effective Learning Techniques," *Psychological Science in the Public Interest* 14, no. 1 (January 8, 2013): 4–58, https://doi.org/10.1177/1529100612453266.

[23] Iêgo Rodrigues Coelho et al., "Democratic Formation of the Constitution of the Federative Republic of Brazil of 1988 (CRFB/1988).," *Revista Brasileira de Crescimento e Desenvolvimento Humano* 33, no. 1 (2023).

[24] Khalid, "Entrepreneurial Insight of Purchase Intention and Co-Developing Behavior of Organic Food Consumption."

[25] Theron, "Coding and Data Analysis during Qualitative Empirical Research in Practical Theology."

[26] Gory, "Improving Retention through Early Intervention: Lessons from South African Universities."

Discussion Summary

At-risk student identification systems are an important tool to improve retention and academic success in South African universities. Although these systems offer several strengths, including early detection of struggling students and targeted interventions, they also face significant challenges. Delays in intervention, unreliable data, and fragmented support services hinder their effectiveness. By addressing these weaknesses and adopting a more holistic approach to student support, South African universities can improve the outcomes of at-risk students and create a more supportive academic environment.

RECOMMENDATIONS

To improve the effectiveness of at-risk student identification systems in South African universities, several key actions are recommended. First, universities should enhance their systems by incorporating real-time data processing tools. This would allow for the immediate identification of at-risk students and enable timely interventions, ensuring that students receive support before academic difficulties become insurmountable. Additionally, the quality and reliability of the data used in these systems must be prioritized. Universities should invest in regular updates to student records, establish standardized data collection practices, and improve data validation processes to ensure accurate and consistent information. Alongside this, universities must adopt a more holistic approach to student support, addressing not only academic challenges but also financial, mental health, and social difficulties.

This comprehensive model of support will ensure that at-risk students receive the full range of assistance they need to succeed both academically and personally. Furthermore, staff members, including academic advisors and support staff, should undergo ongoing training to strengthen their ability to identify at-risk students and provide effective interventions. A focus on building staff capacity is crucial to ensure that the system functions effectively. Another critical recommendation is improving the integration of various student support services, such as tutoring, counseling, financial aid, and mental health support, to create a more seamless and coordinated approach that meets the diverse needs of at-risk students. Finally, at-risk identification systems should expand their focus to include socio-economic, emotional, and mental health factors, alongside academic performance, to provide a more comprehensive understanding of the challenges students face. By addressing these recommendations, universities can improve the effectiveness and timeliness of interventions, thereby better supporting at-risk students and enhancing their academic success and overall well-being.

CONCLUSION

At-risk student identification systems in South African universities are a critical component of efforts to improve retention rates and academic success. Although these systems have successfully identified struggling students and facilitated targeted interventions, significant challenges remain, particularly concerning delayed interventions, data reliability, and fragmented support services. To enhance the effectiveness of these systems, universities must focus on improving real-time data processing, ensuring high-quality data collection, integrating holistic support mechanisms, and investing in staff training. By addressing these areas, universities can create a more proactive, comprehensive, and inclusive approach to supporting at-risk students, ultimately improving academic outcomes and reducing dropout rates.

BIBLIOGRAPHY

Council on Higher Education (CHE). " VitalStats: Public Higher Education 2019." Pretoria: Council on Higher Education, 2020.

Davis, Ralph Henry Carless. *A History of Medieval Europe: From Constantine to Saint Louis*. Routledge, 2013.

Department of Higher Education and Training (DHET). " Annual Report 2022/23." Pretoria: Department of Higher Education and Training, 2023. https://www.gov.za/sites/default/files/gcis_document/202311/dhet-annual-report-2022-23.pdf.

Duarte, Eva, Sofia Silva, and Maria Gouveia-Pereira. "Adolescents' Perceptions About Non-Suicidal Self-Injury, Suicidal Ideation and Suicide Attempts." *European Journal of Mental Health* 18 (2023): 1–11.

Dunlosky, John, Katherine A. Rawson, Elizabeth J. Marsh, Mitchell J. Nathan, and Daniel T. Willingham. “Improving Students’ Learning With Effective Learning Techniques.” *Psychological Science in the Public Interest* 14, no. 1 (January 8, 2013): 4–58. https://doi.org/10.1177/1529100612453266.

Gory, Zanele. “Improving Retention through Early Intervention: Lessons from South African Universities.” *Higher Education Research & Development* 40, no. 3 (2021): 481–95.

Haggis, Tracy, John Campbell, and Brian Allen. “Predictive Analytics in Higher Education: A Review of Best Practices.” *Journal of Educational Data Mining* 13, no. 1 (2021): 1–22.

Khalid, Bilal. “Entrepreneurial Insight of Purchase Intention and Co-Developing Behavior of Organic Food Consumption.” *Polish Journal of Management Studies* 24, no. 1 (December 2021): 142–63. https://doi.org/10.17512/pjms.2021.24.1.09.

Lee, J., and S. Chung. “Holistic Academic Advising: Addressing Emotional, Financial, and Social Needs of University Students.” *Journal of Student Affairs Research and Practice* 56, no. 3 (2019): 243–59.

Lourens, A, and D Bleazard. “Applying Predictive Analytics in Identifying Students at Risk: A Case Study.” *South African Journal of Higher Education* 30, no. 2 (June 2016). https://doi.org/10.20853/30-2-583.

Molefe, N., and B. Maseko. “ Youth Camps as Cultural Incubators: A Model for IKS Transmission.” *South African Journal of Cultural Development* 6, no. 2 (2023): 98–110.

Mouton, M., S. Moodley, and R Singh. “Enhancing Student Success Through Professionalised Academic Advising: A Model for Identifying Academic Advisors for South African Higher Education Context.” *South African Journal of Higher Education* 38, no. 5 (2021): 5219–35.

Naidoo, T., and C. M. Mabaso. “‘Social Constructivism in South African Higher Education: A Case Study,’ .” *Journal of Education Studies* 5, no. 3 (2023): 114–28.

Ngwenya, T., and P. Moyo. “Enhancing Student Success Through Professionalised Academic Advising: A Model for Identifying Academic Advisors for South African Higher Education Contexts.” *South African Journal of Higher Education* 38, no. 5 (2023): 210–29.

Plessis, Charmaine du. “A Scoping Review of the Effect of Content Marketing on Online Consumer Behavior.” *Sage Open* 12, no. 2 (April 23, 2022). https://doi.org/10.1177/21582440221093042.

Rodrigues Coelho, Iêgo, Álvaro Laranjeira, Sandra Dircinha Teixeira de Araújo Moraes, Paulo André Stein Messetti, and Alan Patricio da Silva. “Democratic Formation of the Constitution of the Federative Republic of Brazil of 1988 (CRFB/1988).” *Revista Brasileira de Crescimento e Desenvolvimento Humano* 33, no. 1 (2023).

Sibanda, Faith. “Unleashing Transformation: Zimbabwean Youths Harnessing the Power of Information Technology and Innovation.” Chronicle, March 6, 2024.

Theron, Petria M. “Coding and Data Analysis during Qualitative Empirical Research in Practical Theology.” *In Die Skriflig/In Luce Verbi* 49, no. 3 (February 25, 2015). https://doi.org/10.4102/ids.v49i3.1880.

Truter, Sarah, Joel Turok, and Daniel Moolman. “The Role of Qualitative Assessments in Identifying At-Risk Students.” *Journal of Academic Support Services* 18, no. 2 (2022): 112–30.

Zuma, Nikiwe, Vijay Hamlall, and Nirmala Dorasamy. “"The Zulu Way”: Experiences and Practices of Black Female Teachers: A Case Study of a Rural Secondary School in KwaZulu-Natal, South Africa.” *Gender and Behaviour* 20, no. 2 (2022): 19463–71.

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