

Revitalizing Senior High School Streaming through Adaptive Assessment and Career Services

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Abstract

Flexible curriculum policies have been widely adopted to promote student autonomy and personalized learning in secondary education, yet in practice academic streaming within these systems often encounters substantial challenges, including limited student readiness, fragmented career guidance, and inconsistent school-level implementation. These conditions can produce pseudo-flexibility, whereby students' subject choices are constrained more by institutional capacity than by their interests and abilities. This study aims to analyze the challenges of senior high school academic streaming in flexible curriculum contexts and to develop a conceptual model that revitalizes streaming through the integration of adaptive assessment and career services. Using a qualitative research design, the study employs policy analysis and a systematic literature review of national education policies, peer-reviewed journal articles, and international reports related to curriculum management, assessment, and career guidance. The findings indicate that effective academic streaming requires three interrelated components: adaptive assessment to generate data-informed student profiles, structured career services to provide continuous guidance and decision support, and interdisciplinary learning pathways to

operationalize curricular flexibility in a coherent and meaningful manner. The proposed model positions academic streaming as a managed, student-centered process that aligns pedagogical practices with educational management and educational technology. The study contributes theoretically by offering an integrative framework that bridges gaps between assessment, career guidance, and flexible curriculum policy, and practically by providing a strategic reference for policymakers and school leaders. Future research is recommended to empirically test the proposed model in school settings to evaluate its impact on academic alignment, career readiness, and educational equity.

Keywords: Academic Streaming; Flexible Curriculum; Adaptive Assessment; Career Services; Educational Management.

INTRODUCTION

In response, many countries have adopted flexible curriculum policies that aim to promote student autonomy, interdisciplinary learning, and personalized educational pathways. Within this context, academic streaming at the secondary education level has gained renewed attention as a strategic mechanism to support students' academic alignment and future career readiness rather than as a rigid tracking system.

Recent studies in higher education and skills development consistently demonstrate that curriculum interventions play a critical role in enhancing students' employability and professional preparedness. Structured curriculum designs that integrate professional and career-oriented skills have been shown to significantly improve students' self-perceived employability and confidence in navigating future career pathways (Mei et al., 2025; Padgett & Donald, 2022). Similarly, research on career learning environments indicates that early exposure to career-related competencies and guidance supports academic persistence and reduces the risk of misalignment and course withdrawal (Meijers & Kuijpers, 2014; Mozahem, 2019). These findings suggest that academic streaming should be understood as a developmental process that requires early, systematic, and guided decision-making.

In parallel, studies on entrepreneurship and skills development highlight the importance of embedding employability-oriented learning within curriculum structures. Entrepreneurship education has been found to influence students' self-employment intentions and career orientation more effectively when it is integrated into formal curricula rather than delivered as isolated programmes (Otache et al., 2020; Wang et al., 2024).

Likewise, skills acquisition initiatives that combine academic learning with practical and professional competencies contribute to more sustainable employability outcomes across diverse educational contexts (Mohandas et al., 2022). These insights reinforce the need for curriculum systems that support flexible yet structured academic pathways aligned with students' evolving interests and labor market expectations.

Within flexible curriculum systems, assessment plays a central role in supporting informed academic decision-making. Innovation-based and technology-supported assessment models have been shown to provide comprehensive, data-driven profiles of learners' abilities and interests, enabling more accurate alignment between students and educational pathways (Haryanti et al., 2026). Furthermore, the integration of artificial intelligence and adaptive technologies strengthens personalized and evidence-based learning systems by allowing institutions to respond more effectively to learner diversity (Eriyanti & Sunaryo, 2025). However, assessment and technological innovation alone are insufficient if they are not embedded within coherent management and guidance frameworks.

The implementation of flexible curricula also presents significant managerial and leadership challenges. Empirical evidence from curriculum reform initiatives indicates that educational innovation requires strong leadership and management structures to align policy objectives with school-level practices (Böse & Brauckmann-Sajkiewicz, 2021; Eriyanti et al., 2024). Studies on leadership and change management further emphasize that institutional leadership plays a decisive role in supporting teachers' readiness to implement assessment innovations and curriculum change, particularly in periods of rapid transition and digitalization (Hollingworth, 2012; Law, 2023). Without such alignment, curriculum flexibility risks being implemented superficially, leading to fragmented practices across institutions.

In the Indonesian context, the Merdeka Curriculum represents a major policy shift toward flexibility and student choice in senior high schools. By replacing traditional academic streaming with subject-based selection, the policy aims to empower students to design learning pathways aligned with their interests and aspirations. However, empirical studies on differentiated learning implementation indicate that institutional readiness and management capacity remain uneven, often resulting in constrained or pseudo-flexibility rather than genuinely personalized learning experiences (Hidayati et al., 2024). School-level evidence

further suggests that the effectiveness of educational programmes is strongly influenced by planning, leadership, and service management capacity (Supian et al., 2024).

Supporting this concern, recent research in teacher education contexts reveals a persistent gap between awareness and actual competence, even in environments characterized by high digital engagement. High levels of engagement with digital systems do not necessarily translate into adequate conceptual understanding or effective professional practice, highlighting the need for structured, data-informed educational management systems (Supian & Eriyanti, 2026). This gap mirrors the challenges faced in academic streaming, where students are expected to make critical academic decisions without sufficient guidance, assessment, or institutional support.

Taken together, the existing literature reveals a critical gap in the integration of curriculum flexibility, adaptive assessment, and career guidance within a coherent management framework. While previous studies have examined assessment innovation, employability development, leadership, or curriculum reform in isolation, limited attention has been given to how these elements can be systematically connected to support academic streaming in flexible curriculum systems. Therefore, this study aims to analyze the challenges of senior high school academic streaming within flexible curriculum contexts and to develop a conceptual model that revitalizes streaming through the integration of adaptive assessment and structured career services. By positioning academic streaming as a managed, data-informed, and student-centered process, this study seeks to contribute to the literature on education management and provide practical insights for policymakers and school leaders (Isser et al., 2024).

Despite the growing body of literature on flexible curricula, assessment innovation, and career guidance, existing studies tend to address these dimensions in isolation. Limited attention has been given to how adaptive assessment, structured career services, and curriculum flexibility can be systematically integrated to manage academic streaming at the secondary school level. This study is novel in that it reconceptualizes academic streaming not merely as a curricular option or administrative mechanism, but as a managed, data-informed, and student-centered system. By synthesizing policy analysis and international literature, this research proposes an integrative conceptual model that bridges assessment practices, career services, and interdisciplinary learning pathways within a coherent educational management framework. This integrative perspective extends current scholarship in education

management by positioning academic streaming as a dynamic process supported by technology, leadership, and institutional services—an approach that has not been explicitly articulated in prior studies, particularly in the context of flexible curriculum reforms such as Indonesia’s Merdeka Curriculum.

METHODS

Research Design

This study employed a qualitative research design using policy analysis and systematic literature review to examine academic streaming within flexible curriculum systems and to develop a conceptual model integrating adaptive assessment and career services. A qualitative and conceptual approach was selected because the study aims to synthesize policy frameworks, theoretical perspectives, and empirical findings rather than to test causal relationships through experimental or survey-based methods.

This study did not involve human participants, sampling procedures, or field-based data collection, as it was designed as a conceptual and policy-oriented inquiry. The research focuses on synthesizing secondary data from policy documents, peer-reviewed literature, and international reports. Therefore, elements such as participants, instruments, and sampling techniques—commonly found in empirical studies—are not applicable in this context. The rigor of the study is ensured through systematic literature selection, transparent inclusion and exclusion criteria, and structured thematic and comparative policy analysis

Data Sources

The data were derived from secondary qualitative sources consisting of three main categories. First, national education policy documents related to curriculum reform and flexible learning pathways were reviewed to understand policy intentions and regulatory frameworks. Second, peer-reviewed journal articles indexed in reputable databases such as Scopus, Web of Science, and SINTA 1–2 were selected to ensure academic rigor and relevance to curriculum management, assessment innovation, employability development, and career guidance. Third, international institutional reports and comparative studies focusing on employability, career learning environments, and work-based learning were included to provide broader contextual and global perspectives (Meijers & Kuijpers, 2014; Padgett & Donald, 2022).

Literature Selection Procedure

A systematic literature review procedure was conducted to identify and select relevant studies. The search process utilized academic databases including Scopus, Google Scholar, and institutional repositories using keywords such as *academic streaming*, *flexible curriculum*, *adaptive assessment*, *career services*, *employability*, and *education management*. Inclusion criteria were: (1) publications released within the last ten years, except for seminal leadership and management studies; (2) direct relevance to secondary or higher education curriculum systems; and (3) publication in reputable peer-reviewed journals or official institutional sources. Exclusion criteria included opinion-based articles, non-peer-reviewed publications, and studies lacking methodological clarity. This procedure aligns with established practices in systematic and conceptual reviews in education research (Mohandas et al., 2022).

Data Analysis Techniques

The collected documents were analyzed using thematic analysis and comparative policy analysis. Thematic analysis was applied to identify recurring patterns related to curriculum flexibility, assessment practices, leadership, employability development, and career guidance. Comparative policy analysis was used to examine discrepancies between policy objectives and implementation practices across different institutional contexts, particularly in relation to leadership capacity and management readiness (Hollingworth, 2012; Law, 2023; Odhiambo, 2005). The analytical findings were then synthesized through conceptual model development, integrating pedagogical, managerial, and technological dimensions into a coherent academic streaming framework.

Research Context and Timeline

The research context focused on senior high school education within the Indonesian education system, particularly under the implementation of the Merdeka Curriculum, which emphasizes flexibility and student choice. This context was selected due to its relevance to ongoing curriculum reform and its alignment with international trends toward employability-oriented and student-centered education. The scope of the analysis was limited to issues related to academic streaming, assessment support, leadership and management capacity, and career guidance systems, ensuring consistency with the study's objectives (Hidayati et al., 2024; Supian et al., 2024).

Research Timeline

The policy analysis and literature review were conducted over a six-month period, encompassing stages of literature identification, screening, thematic coding, comparative analysis, and conceptual synthesis. The iterative nature of this process allowed continuous refinement of themes and ensured coherence between empirical evidence, policy analysis, and conceptual development.

Ethical Considerations

As this study relied exclusively on secondary data obtained from publicly accessible documents and published literature, no direct involvement of human participants was required. Ethical considerations were addressed by ensuring accurate citation, proper acknowledgment of original sources, and adherence to academic integrity standards throughout the research process. The use of secondary data and conceptual analysis is consistent with ethical practices in education management research (Supian & Eriyanti, 2026).

RESULTS

The results of this study are derived from the thematic analysis of policy documents, peer-reviewed literature, and international reports related to academic streaming, flexible curricula, adaptive assessment, and career services. The findings are organized into three main themes: (1) key challenges in senior high school streaming under flexible curriculum systems, (2) gaps between policy intentions and implementation practices, and (3) core components of a revitalized academic streaming model.

Challenges in Academic Streaming within Flexible Curriculum Systems

The analysis revealed that flexible curriculum policies, while conceptually progressive, generate several structural and managerial challenges at the senior high school level. First, many students lack sufficient self-awareness regarding their interests, abilities, and career aspirations when required to select academic subjects. Without systematic assessment tools, subject selection often relies on social influence, perceived prestige of certain subjects, or institutional constraints rather than informed decision-making.

Second, schools frequently face limitations in providing diverse subject options due to shortages of qualified teachers, inadequate facilities, and rigid scheduling systems. As a

result, the flexibility promised by curriculum policy is often reduced to a limited set of choices, leading to what the literature describes as *pseudo-flexibility*. This condition undermines the principle of personalized learning and restricts students' opportunities to explore interdisciplinary pathways.

Third, career guidance services in many senior high schools remain fragmented and reactive. Career-related activities are typically concentrated in the final year of schooling and focus on university admission rather than long-term career development. This limited approach reduces the effectiveness of academic streaming, as students are expected to make critical academic decisions without continuous and structured career support.

Policy–Practice Gaps in Flexible Streaming Implementation

A second major finding concerns the discrepancy between policy objectives and school-level implementation. Policy documents emphasize autonomy, student choice, and flexibility, yet operational guidelines for managing academic streaming are often vague. Schools are granted discretion without sufficient managerial frameworks, assessment systems, or support mechanisms to guide implementation.

The analysis indicates that this policy–practice gap results in inconsistent streaming practices across schools. Institutions with stronger resources and management capacity are better able to operationalize flexible streaming, while resource-constrained schools tend to revert to traditional tracking patterns. Consequently, flexible curriculum policies risk reinforcing educational inequality rather than reducing it, as students' learning pathways become increasingly dependent on institutional capacity rather than individual potential.

Core Components of a Revitalized Academic Streaming Model

Based on the synthesis of findings, the study identifies three interrelated components essential for revitalizing senior high school academic streaming within flexible curriculum systems: adaptive assessment, structured career services, and interdisciplinary learning pathways. These components form the foundation of an integrated conceptual model that addresses both pedagogical and managerial dimensions of streaming.

Adaptive assessment emerges as a critical mechanism for generating evidence-based profiles of students' interests, strengths, and learning tendencies. Technology-supported adaptive assessments provide more personalized and dynamic data compared to

conventional testing methods, enabling schools to support students’ academic choices more effectively.

Structured career services function as the managerial backbone of the streaming process. Continuous career guidance, supported by dedicated institutional units, allows students to interpret assessment results, explore academic and occupational pathways, and adjust their learning trajectories over time. This shifts career guidance from a one-time intervention to an ongoing developmental process.

Interdisciplinary learning pathways serve as the pedagogical expression of flexible streaming. By allowing students to combine subjects across traditional disciplinary boundaries, schools can foster broader competencies aligned with contemporary educational and labor market demands.

Table 1. Key Findings and Implications for Academic Streaming Management

Key Findings	Description	Managerial Implications
Limited student readiness	Students lack systematic understanding of interests and abilities	Need for early adaptive assessment
Pseudo-flexibility	Subject choices constrained by school resources	Strategic curriculum planning required
Fragmented career guidance	Career services are sporadic and late-stage	Establish continuous career services
Policy–practice gap	Vague operational guidance	Develop integrated management framework
Inequality across schools	Resource disparities affect streaming quality	Policy support and capacity building

Proposed Conceptual Model of Revitalized Academic Streaming

The findings culminate in a conceptual model that positions academic streaming as an integrated system rather than a standalone policy mechanism. In this model, adaptive assessment informs students’ academic profiles, career services translate assessment data into guided decision-making, and interdisciplinary learning pathways operationalize flexibility in curriculum design. Together, these elements form a managed and data-informed streaming system aligned with flexible curriculum principles.

DISCUSSION

The findings of this study indicate that academic streaming within flexible curriculum systems cannot function effectively without a coherent management framework that integrates assessment, career guidance, and institutional leadership. International research emphasizes that curriculum interventions are most effective when they are intentionally designed to support employability and career readiness rather than merely expanding students' academic choices (Mei et al., 2025; Padgett & Donald, 2022). This suggests that flexibility must be accompanied by structured institutional support to avoid fragmented learning pathways.

A key implication of the findings relates to the role of adaptive assessment in facilitating informed academic decision-making. Innovation-based and technology-supported assessment models enable the generation of comprehensive and data-driven learner profiles, allowing schools to align students' academic pathways more accurately with their interests and competencies (Haryanti et al., 2026). The integration of artificial intelligence and adaptive technologies further strengthens personalized learning systems by enabling continuous adjustments based on students' evolving profiles (Eriyanti & Sunaryo, 2025). In academic streaming contexts, adaptive assessment reduces reliance on subjective judgment, social pressure, and institutional bias in subject selection.

The findings also highlight the strategic importance of structured career services as a mediating mechanism between assessment outcomes and curriculum pathways. Studies on career learning environments demonstrate that early and continuous career guidance enhances academic engagement, persistence, and alignment with long-term aspirations (Meijers & Kuijpers, 2014; Mozahem, 2019). Similarly, employability-oriented curriculum initiatives show that structured guidance and skills development programs contribute to more sustainable career outcomes when embedded within institutional systems (Mohandas et al., 2022; Otache et al., 2020). These insights reinforce the argument that academic streaming should be supported by institutionalized career services rather than treated as a one-time administrative decision.

From an educational management perspective, leadership and institutional capacity emerge as critical determinants of effective academic streaming. Educational innovation literature consistently demonstrates that leadership coherence and management structures are essential for aligning curriculum policies with school-level practices (Böse &

Brauckmann-Sajkiewicz, 2021; Eriyanti et al., 2024). In periods of rapid curricular change and digital transformation, leadership capacity significantly influences teachers' readiness to implement assessment innovations and curriculum reforms (Cosby et al., 2024; Hollingworth, 2012; Law, 2023). Without such alignment, flexible curriculum policies risk being implemented superficially, resulting in inconsistent streaming practices across schools.

In the Indonesian context, the implementation of the Merdeka Curriculum illustrates these challenges clearly. Although the policy promotes student autonomy through subject-based selection, empirical studies indicate that uneven institutional readiness often leads to constrained or pseudo-flexibility (Hidayati et al., 2024). School-level evidence further suggests that planning quality, leadership effectiveness, and service management capacity strongly influence the success of educational programs (Supian et al., 2024). These conditions underscore the need to conceptualize academic streaming as a managed system rather than an autonomous student choice mechanism.

However, this study is limited by its reliance on policy documents and secondary literature, which may not fully capture variations in school-level implementation practices. Despite this limitation, the synthesis of international and national evidence provides a robust conceptual basis for understanding the structural and managerial requirements of effective academic streaming.

Overall, the findings support the development of an integrated academic streaming model that combines adaptive assessment, structured career services, and interdisciplinary learning pathways within a coherent management framework. Rather than functioning as a static classification mechanism, academic streaming should be understood as a dynamic, student-centered process that evolves through continuous assessment, guidance, and curricular adjustment. This perspective aligns with international views on sustainable curriculum reform that emphasize gradual adaptation supported by institutional capacity building and stakeholder engagement (Stoten, 2018).

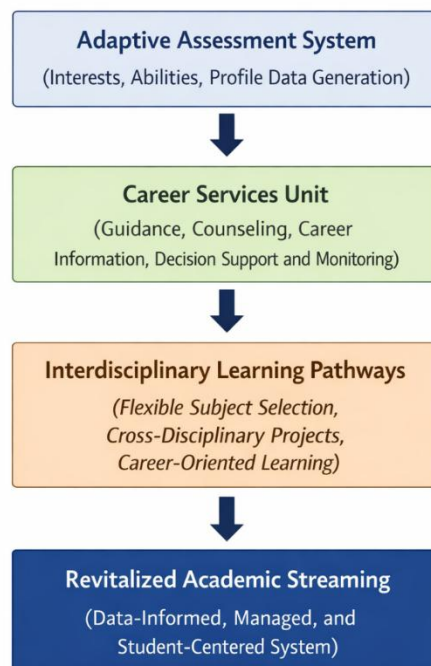


Figure 1. Conceptual Model of Revitalized Senior High School Streaming

Figure 1 illustrates the proposed conceptual model of revitalized academic streaming. The model positions adaptive assessment as the initial mechanism for generating data-informed student profiles, which are subsequently interpreted through structured career services. These services guide students in selecting interdisciplinary learning pathways aligned with their interests, competencies, and career aspirations. The integration of these components results in a managed, student-centered academic streaming system that balances curricular flexibility with institutional support and leadership.

CONCLUSION

This study highlights that academic streaming within flexible curriculum systems requires more than policy-level autonomy to function effectively. While flexibility is intended to support personalized learning and student agency, the findings demonstrate that unstructured flexibility may lead to confusion, pseudo-choice, and unequal educational outcomes across schools. These challenges indicate that academic streaming should be understood not merely as a curricular option, but as a managed educational process that integrates pedagogical, managerial, and technological dimensions.

The study contributes conceptually by proposing a revitalized academic streaming model that integrates adaptive assessment, structured career services, and interdisciplinary learning pathways. Adaptive assessment provides data-informed insights into students' interests and abilities, enabling evidence-based academic decision-making. Structured career services translate assessment data into continuous guidance and monitoring. Interdisciplinary learning pathways operationalize flexibility in a coherent manner, allowing students to combine subjects across disciplines while maintaining curricular integrity and relevance to future career demands.

From a scientific perspective, this study advances the literature on curriculum management by offering an integrative framework that bridges gaps between assessment practices, career guidance, and flexible curriculum policies. Practically, the proposed model offers policymakers and school leaders a strategic reference for designing and implementing academic streaming systems that balance student autonomy with institutional support. By positioning streaming as a data-informed and student-centered system, schools may better support career readiness while reducing disparities caused by unequal institutional capacity.

Nevertheless, this study is limited by its conceptual and policy-based approach, as the proposed model has not yet been empirically tested in school settings. Future research is therefore recommended to examine the effectiveness of the model through empirical studies, such as case studies, pilot implementations, or mixed-method research designs. Such studies may assess the impact of the model on students' academic alignment, career readiness, and educational equity. Despite these limitations, the present study provides a robust conceptual foundation for rethinking academic streaming in flexible curriculum systems and offers meaningful implications for education management and policy development.

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