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BRIDGING THE EMPLOYABILITY GAP: INTEGRATING TABLEAU IN TEACHING BUSINESS ANALYTICS AND MODELLING FOR STUDENTS IN PUBLIC HIGHER LEARNING INSTITUTIONS

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Abstract: *The rapid acceleration of data-driven decision-making in the corporate sector demands a highly sophisticated analytical skillset from contemporary graduates. This paper explores the pedagogical value of integrating Tableau into the teaching of Business Analytics and Modelling, specifically examining its impact on undergraduate students within public higher learning institutions. In public higher learning, teaching methodologies must dynamically evolve to meet global workforce demands while managing diverse student demographics. Utilizing an action research framework, this study evaluates how hands-on training and visualization software alter student competencies, critical thinking, and confidence levels. The findings demonstrate that purposeful integration of visual analytics in teaching significantly minimizes technical data anxiety among students, improves dashboard self-efficacy, and expands workplace readiness. The study offers instructional frameworks for faculty members aiming to optimize curriculum design within public higher learning.*

Keywords: *Business Analytics, Tableau, Visual Data Modeling, Public Higher Learning, Student Employability, Teaching Interventions.*

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Introduction

In the contemporary digital global economy, big data has transitioned into a highly valued strategic organizational asset. The capability to process raw operational metrics, formulate statistical models, and transform abstract data into actionable visual solutions defines competitive advantage across modern industries (McAfee & Brynjolfsson, 2012). Consequently, global corporate networks have established a profound reliance on comprehensive data analytics, replacing intuitive enterprise management with data-centric workflows (Provost & Fawcett, 2013). This industrial revolution heavily impacts public higher learning institutions, placing immense responsibility on business faculties to optimize their teaching strategies and cultivate advanced operational readiness among students (AACSB, 2021).

Despite rising demands for advanced data competency, a recognizable digital skill deficit exists among students graduating from institutional programs worldwide (Radovilsky et al., 2018). Conventional teaching structures within public higher learning often isolate technical metrics to abstract calculations or static spreadsheet rows, failing to foster the robust data visualization talents requested by corporate employers (Aasheim et al., 2012). To overcome this structural instructional mismatch, the pedagogical framework applied in public higher learning institutions must aggressively incorporate interactive industry-standard analytical instruments directly into the classroom environment.

This study evaluates the targeted integration of Tableau into the teaching of Business Analytics and Modelling modules for undergraduate students enrolled at Universiti Teknologi MARA (UiTM). As a premier public higher learning institution, UiTM continuously reviews its instructional pipelines to optimize teaching efficacy and student marketability. By exploring software-centric visual modeling, this action research examines how modern teaching methods change how students approach business intelligence and helps determine how public higher learning systems can better shape job-ready analytical graduates.

Literature Review

Business Analytics and the Changing Demands on Public Higher Learning

Business analytics utilizes statistical data processing, iterative empirical investigation, and predictive modelling to drive strategic corporate workflows (Davenport & Harris, 2007). Modern businesses leverage sophisticated modeling tools to analyze complex supply chains, predict user behaviors, and maximize financial sustainability (Chen et al., 2012). In response, public higher learning institutions face mounting pressure to modernize their business degrees, ensuring that teaching practices do not fall behind fast-moving industry tech stacks (Sharda et al., 2020). Academic faculties must restructure traditional teaching models to ensure students can actively translate raw transactional registers into boardroom insights.

Software-Centric Visualization in Student Pedagogy

Data visualization represents the graphical presentation of complex information to accelerate cognitive synthesis and discovery (Few, 2012). Tableau has achieved global popularity within corporate spaces due to its drag-and-drop dashboard design capabilities, swift blending speeds, and comprehensive analytical pipelines (Chawla & Somani, 2019). By shifting teaching strategies toward software-driven visualization, public higher learning programs allow business students to circumvent coding syntax barriers (such as Python or R) and engage

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directly with strategic dashboard logic and structured enterprise data storytelling (Murray, 2013).

Innovation in Teaching to Secure Student Employability

The primary mandate governing public higher learning centers on strengthening student employabilitysecuring the essential skillsets, theoretical values, and practical experiences that position graduates for competitive marketplace success (Yorke, 2006). Integrating interactive industry tools into active teaching frameworks heavily accelerates graduate interview success rates (Wixom et al., 2014). Students who acquire documented proficiencies in constructing high-level corporate models during their academic tenure demonstrate stronger operational capability, reducing initial training costs for future corporate employers (Gupta et al., 2015).

Methodology

This study implemented an educational action research structure comprising interconnected cycles of systematic planning, instructional execution, classroom observation, and collective reflection (Kemmis & McTaggart, 2005). The classroom intervention spanned a full 14-week academic semester, examining how updated teaching layouts affect students taking the core Business Analytics and Modelling course. The research actively focused on tracking student engagement, analytical growth, and software adoption rates.

The updated teaching approach delivered sequential training phases: interactive database connection and normalization, multidimensional model calculation, and executive dashboard communication. The underlying teaching ideology combined structured lab assignments with independent group projects, encouraging students to process chaotic public sector datasets into interactive executive portfolios. Comprehensive mixed-method assessment frameworks captured student competencies alongside post-course career reflections (Creswell, 2014).

Findings and Discussion

Impact of Teaching on Student Technical Self-Efficacy

Prior to introducing the software intervention, student baseline competencies were confined to simple static spreadsheet manipulations. Following the implementation of interactive Tableau labs, evaluation metrics recorded substantial competency growth among students across all target areas. Students successfully demonstrated an increased ability to navigate multi-layered corporate databases and build operational dashboards.

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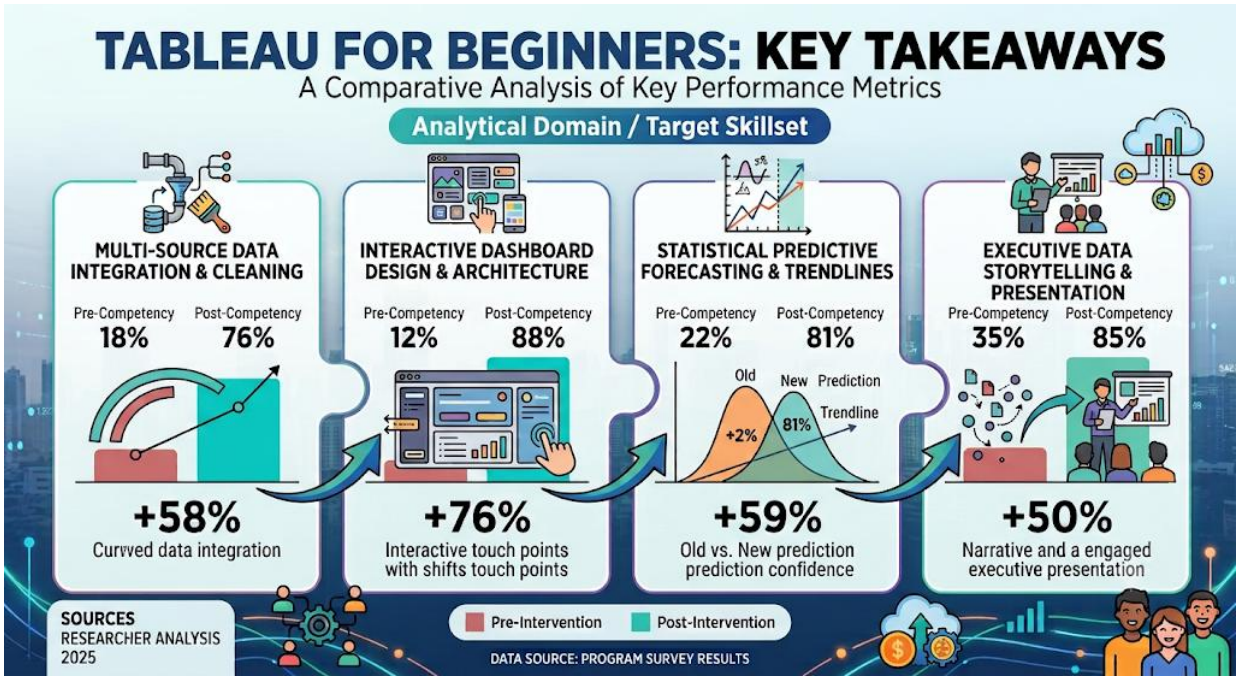

Figure 1: Student Self-Efficacy Across Analytical Benchmarks Before and After Teaching Intervention (% Proficient)

Practical Advantages Realized by Students

Qualitative analysis of the data collected from student focus groups and learning portfolios revealed a major development in professional identity. Three primary core areas emerged from the textual data:

1. *Dissipation of Technical Anxiety:* Moving away from command-line scripting to a high-fidelity visual interface allowed students with minimal coding backgrounds to successfully complete advanced business modelling tasks (Wilder & Ozgur, 2015).

2. *Active Portfolio Generation:* Students created standalone dashboard portfolios targeting real-world operations, which they actively showcased to interview panels during placement applications to prove immediate corporate value (Wang & Wang, 2020).

3. *Cognitive Transition into Strategic Problem Solving:* Interactive dashboard design taught students to look beyond historical tables, shifting their mental model toward prospective forecasting and diagnostic root-cause tracking (Sclancea & Pop, 2021).

Conclusion and Recommendations

Re-evaluating teaching methods within public higher learning is crucial to maintaining educational relevance. The deliberate introduction of software-centric visual analytics in the Business Analytics and Modelling syllabus successfully addresses the modern industrial skill gap, changing students from passive information consumers into capable data assets ready for immediate corporate deployment.

To sustain these educational benefits, public higher learning administrations must systematically expand industry-academic partnerships to secure continuous software licensing and student certification pathways (Debortoli et al., 2014). Furthermore, higher education

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teaching frameworks should consistently bridge classroom practice with live cloud infrastructure, ensuring students gain adequate familiarity with real-time operational environments.

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