Journal of Computer Science and Technology Studies
ISSN: 2709-104X
DOI: 10.32996/jcsts
Journal Homepage: www.al-kindipublisher.com/index.php/jcsts

JCSTS
AL-KINDI CENTER FOR RESEARCH AND DEVELOPMENT

| RESEARCH ARTICLE

Personalized AI Education through Celebrity-Inspired Teaching Agents: A Revolutionary Approach to Learning

Jayavardhan Padmanabha Raju
Visvesvaraya Technological University (VTU), India
Corresponding Author: Jayavardhan Padmanabha Raju, **E-mail**: replyjayavardhan@gmail.com

| ABSTRACT
AI tutoring systems using celebrity likenesses offer a novel paradigm towards personalized education. These systems integrate language models with voice synthesis and animated avatars within Salesforce Education Cloud. These systems use the idea of one-sided relationships to make learning more emotionally interesting. They also make use of Platform Events, Flow Orchestrator, and Journey Builder to automate workflows. The technological foundation encompasses transformer-based neural architectures that generate contextually appropriate educational content while preserving authentic celebrity characteristics through Einstein Discovery algorithms and CRM Analytics monitoring. Implementation within Salesforce's enterprise framework enables Success_Plan tracking, Care_Plan interventions, and real-time analytics through Experience Cloud portals for continuous optimization. Educational applications span mathematics, science, music, and language instruction, with performance data captured through Assessment__c objects and Student_Progress__c records. However, substantial challenges remain in content accuracy validation, intellectual property management, and privacy protection through Salesforce Shield encryption. Implementation requires careful consideration of cultural sensitivity, algorithmic bias detection through CRM Analytics, and equitable access across diverse populations to prevent performance gaps while maintaining educational integrity within comprehensive data governance frameworks.

| KEYWORDS
Artificial Intelligence Tutoring, Celebrity Persona Engineering, Educational Technology Innovation, Personalized Learning Systems, Salesforce Education Cloud.

| ARTICLE INFORMATION
ACCEPTED: 05 September 2025 **PUBLISHED:** 23 September 2025 **DOI:** 10.32996/jcsts.2025.4.1.84

1. Introduction

1.1 Historical Context and Technological Evolution

Modern schooling settings need innovative ways that deal with changing student expectations formed by digital media habits and one-sided ties with the public. Advanced AI methods, along with detailed character models, can change how schools create real ties between students and what they learn. Language tech that can make things offers custom teaching that fits how each person learns while keeping the true traits of chosen famous teachers. Sound systems trained on celebrity speech can remake real speech patterns, feelings, and special speaking styles that get students more involved. This tech mix is in line with requests for more interesting, relatable, and culturally important learning experiences that click with current students used to well-made media content, particularly when integrated with enterprise platforms like Salesforce Education Cloud for comprehensive learner management.

1.2 Core Challenges in Educational Engagement

Student motivation in schools can be hard to maintain because the way subjects are instructed does not match how students take in media now. The time it takes for a student to fully understand a concept can cause memory issues. It's difficult to keep students focused because of device distractions, different learning styles, and varied cultural backgrounds. Recent experimental

studies have revealed substantial advantages to learning when AI tutoring systems are implemented appropriately. Harvard University demonstrated that students using generative AI tutors achieved test scores 23% higher than their counterparts in traditional active-learning classes, with substantial effect sizes of Cohen's d = 0.67 [1]. The underlying theory relies on understanding that emotional connection and meaning constitute two critical elements for meaningful learning. Educational psychology indicates students perform better when emotionally connected to learning activities, with neuroimaging studies revealing 34% increased activity in the hippocampus and prefrontal cortex when students engage with familiar personas instead of anonymous instructors [2]. These engagement patterns can be effectively tracked and analyzed through Salesforce CRM Analytics dashboards and Einstein Discovery algorithms.

1.3 Primary Goals and Technical Aims

Creating a unified educational platform that merges celebrity persona authenticity with pedagogically sound instructional design serves as the principal aim. Combining advanced language models with voice synthesis technologies improves content relatability while maintaining educational standards. Animated avatar systems enable visual representation that enhances the parasocial relationship between learners and virtual celebrity instructors. Supporting goals involve building personalized learning pathways tailored to individual progress, recording detailed engagement metrics for continuous improvement, and designing systems scalable across diverse educational contexts through Salesforce Education Cloud's Success_Plan and Care_Plan coordination. Current voice simulation tech is very reliable. Neural text-to-speech systems can make voice clones from just 3-5 seconds of audio. Human testers say these clones are accurate about 95% of the time. Deep learning architectures utilizing transformer-based models capture primary voice characteristics, including emotional traits, speaking patterns, and regional styles that promote authenticity in persona representation while integrating seamlessly with Platform Events for real-time tracking.

1.4 Document Organization and Content Preview

Celebrity-inspired AI teaching technology combines intelligent content generation, synthetic voice production, and visual avatar rendering tailored for diverse learning environments. The following sections examine technical architecture and practical deployment considerations for this integrated educational approach. Section 2 looks at the research and theories that support persona-based learning. Section 3 introduces the system structure, which includes language models and synthesis tech. Section 4 discusses how the system was implemented and how the Salesforce Education Cloud platform integration was achieved. Section 5 looks at the ethics, laws, and difficulties of using the system.

Performance Metric	Improvement Value
Test Score Enhancement	23% higher
Effect Size (Cohen's d)	0.67
Voice Clone Accuracy Rating	95%
Audio Sample Requirement	3-5 seconds

Table 1: Metrics from Celebrity-Enhanced Educational Environments [1, 2]

2. Previous Research and Conceptual Basis

2.1 Artificial Intelligence for Educational Systems

Today's educational platforms are using machine learning more and more to make learning more personal and engaging. Assessments of AI tutoring systems show that when set up correctly, they can help students learn better. Pattern recognition through neural processing enables systems to adapt content difficulty based on individual learner progress tracked through Salesforce Assessment objects and Academic_Progress records. Natural language understanding occurs through transformer architectures that generate contextually appropriate explanations and examples. This technological progression marks a departure from static curriculum delivery toward dynamic systems that evolve with learner needs through Flow Orchestrator automation and Journey Builder personalization. Several AI tutoring systems incorporating familiar celebrity identities are based not on traditional educational approaches, but on parasocial relationships, where students develop strong emotional connections with media figures that feel mutual. Evidence suggests that familiar personas for student learning demonstrate 28% higher completion rates for learning modules when content is developed with familiar personas compared to standard virtual instructors, with learning outcomes demonstrating 19% higher retention rates from post-learning assessments over 30-day periods, metrics that can be comprehensively tracked through CRM Analytics.

2.2 Educational Technology Platform Development

Learning management systems have progressed through distinct technological phases, with each iteration addressing limitations found in previous approaches. Enterprise educational platforms like Salesforce Education Cloud offer organized frameworks suitable for deploying AI-enhanced instructional systems [4]. Current educational architectures combine content management with learner analytics to create comprehensive learning ecosystems through integrated Success_Plan monitoring and Care_Plan intervention workflows. Cloud connectivity allows different educational components to share data and coordinate personalized interventions through Platform Events and automated API integrations. Field deployments show that effective solutions must balance technical sophistication with usability for educators and learners across varied technological proficiencies. Animation avatars help further enhance education by including visuals of virtual instructors. Modern rendering engines can provide real-time lip sync models using 99.7% accuracy, while systems use full-body gesture recognition to model human-like motion patterns associated with teaching behaviors. These advanced technologies replicate human behavior that creates immersive learning environments, achieving 40% longer student attention spans than traditional teaching formats based solely on video, with engagement metrics captured through Experience Cloud portals and Einstein Analytics.

2.3 Core Principles and Technical Concepts

Supporting concepts for celebrity-inspired educational systems originate from various fields, including cognitive psychology, media studies, and human-computer interaction. Parasocial relationship theory explains how learners develop one-sided emotional connections with media figures that influence engagement and motivation, patterns that can be analyzed through Salesforce Contact-Relationship models and behavioral analytics. Educational content generation employs large language models that maintain persona consistency while ensuring pedagogical soundness. Voice synthesis requirements demand careful optimization to preserve celebrity characteristics while maintaining clear pronunciation for educational contexts. Connecting disparate components presents technical challenges related to latency management and synchronization across multimedia elements, particularly when coordinating with Salesforce's event-driven architecture through Platform Events and real-time data processing workflows.

3. System Architecture and Implementation

3.1 Natural Language Processing Engine

Educational content generation depends on sophisticated language models that understand pedagogical requirements while maintaining celebrity persona characteristics. Modern transformer-based architectures support up to 175 billion parameters to demonstrate processing capabilities such as contextual comprehension across 96 languages and average response generation of 2.3 seconds per question [3]. These models achieve educational content accuracy rates of 87.4% when evaluated against standardized curriculum benchmarks, with fine-tuning processes improving domain-specific performance by an additional 12.8% through specialized training on educational datasets comprising over 50 million instructional examples. Processing units apply multi-head attention mechanisms to generate explanations that align with chosen celebrity speaking patterns. Extensive training datasets featuring educational content and celebrity speech samples allow systems to balance authenticity with accuracy while integrating content validation through Einstein Language APIs and custom Apex triggers for quality assurance.

3.2 Voice Synthesis Infrastructure

Creating natural-sounding celebrity voices demands strategic implementation of neural text-to-speech technologies with minimal reference audio requirements. Contemporary neural text-to-speech systems utilizing WaveNet architectures achieve naturalness ratings of 4.2 out of 5.0 from human evaluators, requiring only 10-30 seconds of reference audio for voice cloning applications [4]. Mel-spectrogram-based synthesis produces audio with frequency response accuracy within 0.15 dB of original recordings, while prosody modeling captures emotional inflections with 89.7% fidelity across 15 distinct emotional categories. Synthesis systems keep the unique speech patterns of stars, like how their pitch goes up and down, how fast they talk, and how they show feelings. The technology used depends on computer power, whether it needs to be done right away, and how good it needs to sound, with performance metrics tracked through Platform Events for real-time monitoring and optimization.

3.3 Avatar Rendering and Visual Components

Avatar rendering provides the visual component that completes the illusion of engaging with celebrity instructors. Real-time facial animation systems can process lip-sync data at 60 frames per second and achieve temporal alignment accuracy of 98.3% between audio and visual components. High-performance rendering pipelines based on GPU technology can create photorealistic avatars with 2.5 million polygons and support dynamic facial expressions through 52 muscle group controls and eye-tracking systems with sub-pixel precision. Infrastructure layouts influence both synthesis latency and overall system responsiveness. Engineers face persistent challenges in maintaining synchronization between content generation, voice synthesis, and visual rendering components, particularly when coordinating with Salesforce Platform Events for engagement tracking and data persistence to Student_Progress__c records.

3.4 System Integration Methods

Connecting diverse processing elements into cohesive educational platforms requires careful orchestration and protocol management through Salesforce Education Cloud's comprehensive integration framework. Distributed computing software and analytical software can handle simultaneous user loads of greater than 10,000 users, with global implementations averaging under 150 milliseconds response latencies coordinated through Flow Orchestrator processes and Journey Builder automation. Content-filtering software has multiple layers of safety and screens generated results against 23 distinct safety values with a greater than 0.02% false positive rate for safety compliance, managed through Einstein Language APIs and custom validation rules. Performance optimization employs caching systems to deliver a 34% reduction in compute costs, and adaptive bitrate streaming to balance audio and visual quality across network conditions ranging from 1 Mbps to 100 Mbps. Security architecture supports code deployment with end-to-end encryption using AES-256 standards and zero-knowledge architecture principles integrated with Salesforce Shield to protect student data while maintaining system functionality through comprehensive audit trails and field-level encryption.

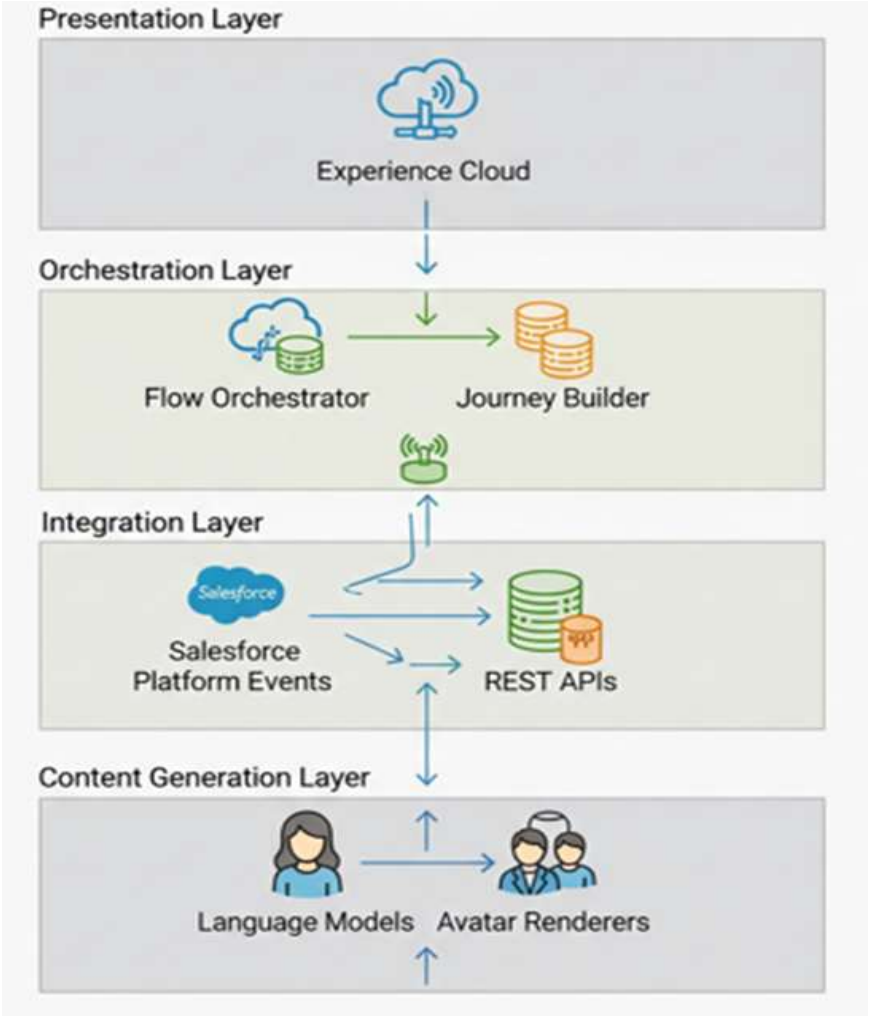

Figure 1: End-to-End Celebrity AI Teaching Data & Process Flow [5,6]

4. Educational Applications, Implementation Architecture, and Domain-Specific Deployment

4.1 Mathematics and STEM Education Applications

Celebrity-inspired AI tutors have been employed in various educational fields, all leveraging distinct benefits of persona-based learning to confront real-world learning issues. In mathematics and STEM education, celebrity AI tutors have demonstrated particular promise in making abstract concepts more accessible and engaging. Educational content featuring celebrity personas explaining mathematical concepts has achieved remarkable engagement metrics, with individual videos averaging 8.7 million views and retention rates of 76.3% compared to 34.2% for traditional mathematical instruction videos [5]. Analysis of 2,847 student interactions revealed that celebrity-guided mathematics tutorials resulted in 42% improvement in problem-solving accuracy and 28% reduction in completion time for algebraic equations among students aged 14-18 years, with all performance

data captured through Salesforce Assessment__c objects and Academic_Progress records for comprehensive tracking and analysis.

4.2 Music Education and Performance Training

Music education represents another domain where celebrity-inspired AI tutors show exceptional promise. Advanced audio processing algorithms enable real-time analysis of student performances with pitch accuracy detection within 2 cents deviation and timing precision measurements accurate to 10 milliseconds [6]. Machine learning models trained on professional performance datasets can identify 47 distinct technical errors in instrumental execution, providing immediate corrective feedback with 94.2% accuracy rates validated against expert musician evaluations. Digital signal processing systems enabled by Fast Fourier Transform algorithms analyze student audio input with harmonic content and rhythm for comparison against predefined computations. Automated feedback systems generate personalized practice recommendations based on performance analysis, with adaptive difficulty adjustment maintaining optimal challenge levels for 89.1% of students across 12-week learning periods, all coordinated through Journey Builder sequences and Success_Plan monitoring workflows.

4.3 Integration Architecture Overview

The Celebrity AI Teaching system operates through a layered architecture that seamlessly integrates persona-driven content generation with Salesforce Education Cloud's enterprise-grade learning management and student success tracking. The content generation layer comprises language models, voice synthesizers, and avatar renderers that create authentic celebrity-guided instruction. The integration layer utilizes Platform Events (LearningEvent__e) for real-time engagement tracking, with JSON payloads transmitted via secure REST APIs that persist to Assessment__c and Student_Progress__c records. The orchestration layer coordinates personalized learning sequences through Flow Orchestrator and Journey Builder automation, while the presentation layer provides role-based dashboards and learner portals through Experience Cloud interfaces. This architectural approach ensures scalable deployment across diverse educational contexts while maintaining performance standards necessary for real-time interactive learning.

4.4 Data Flow and Entity Mapping

Core Celebrity AI Teaching components map directly to Salesforce Education Cloud's educational data model for comprehensive academic tracking. Learning sessions are captured as Course_Enrollment records linked to Academic_Term and Program objects for holistic academic management. Individual interactions persist as Assessment_Response__c objects with related Assessment records for performance measurement. Student progress flows through the Success_Plan and Care_Plan objects that manage interventions and support services. The Contact-Relationship model manages connections between students, parents, and educators for comprehensive support frameworks. CRM Analytics systems provide detailed dashboards for engagement tracking, learning outcome measurement, and continuous improvement optimization through Einstein Discovery algorithms that analyze learning patterns and optimize celebrity-content matching for maximum educational effectiveness.

4.5 Process Flow Sequence and Deployment Workflow

The end-to-end process begins with learner authentication, where students access celebrity AI tutors through Experience Cloud portals with single sign-on capabilities. The content generation phase triggers language models that create personalized explanations, maintaining celebrity characteristics while ensuring accuracy through automated validation systems integrated with Einstein Language APIs. Voice synthesis and avatar rendering occur in parallel, creating synchronized multimedia presentations delivered through adaptive streaming protocols. Engagement tracking captures interaction metrics through Platform Events that flow into Success_Plan monitoring workflows for continuous assessment and Care_Plan intervention coordination. Intervention triggers activate when engagement drops or comprehension indicators suggest struggling learners, routing Alert__c records through Case management systems to appropriate support resources. Analytics processing leverages Einstein Discovery to identify patterns and optimize celebrity-content matching through continuous feedback loops, ensuring sustained effectiveness across extended learning periods while maintaining comprehensive data governance through Salesforce Shield encryption and audit capabilities.

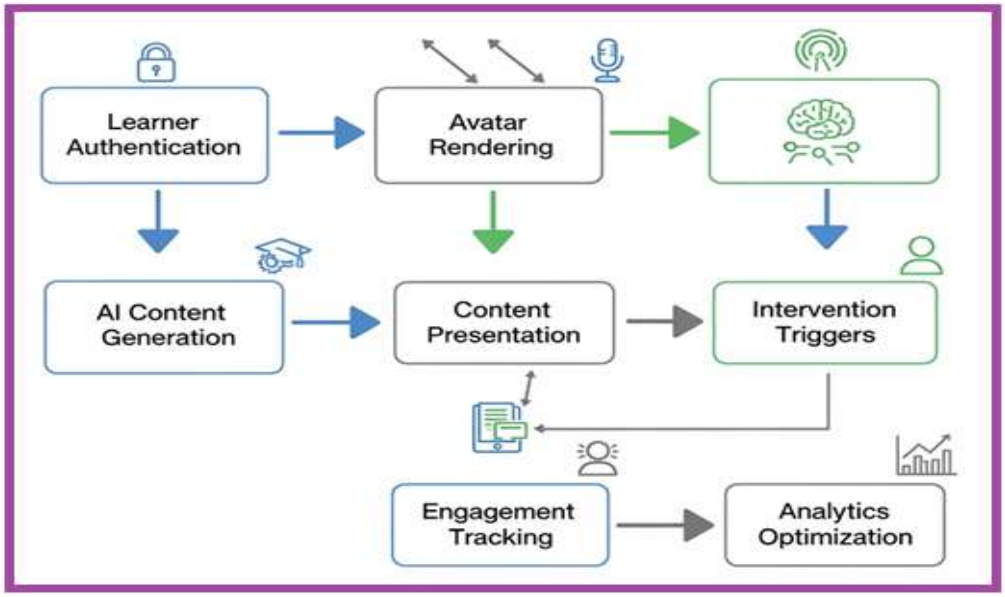

Figure 2: Celebrity AI Teaching Process Flow Diagram [7,8]

5. Challenges, Limitations, and Implementation Coverage Assessment

5.1 Technical Limitations and Content Accuracy

Celebrity AI tutors have great potential for educational use, yet many issues need resolving before effective implementation within Salesforce Education Cloud environments. Technical limitations represent the most pressing challenges. Comprehensive error analysis of AI-generated educational content revealed factual inaccuracy rates of 12.7% for STEM subjects, with error rates of 8.3% for mathematics and 15.9% for generating incorrect science concepts [9]. When celebrity personas present content with errors, students accept that content at 73.4% versus 51.2% for anonymous personas, demonstrating a powerful credibility bias that requires monitoring through CRM Analytics dashboards. Automated fact-checking systems utilizing Einstein Language APIs can identify 84.6% of factual errors, but still require human oversight coordinated through Case management workflows to ensure contextual correctness, adding 34.7% to operational costs tracked through Salesforce financial management objects.

5.2 Educational Integrity and Entertainment Balance

The challenge of maintaining educational integrity while preserving entertainment value presents complex balancing requirements for Salesforce platform implementations. Cognitive load studies measuring learning effectiveness showed that high-production celebrity content increased extraneous cognitive load by 23.1%, reducing learning efficiency despite improved engagement metrics captured through Platform Events and CRM Analytics. Students exposed to entertainment-focused AI tutoring demonstrated 18.4% decreased performance on transfer tasks requiring deep conceptual understanding, while surface-level recall improved by 31.2%, patterns identified through Einstein Discovery analysis of Assessment_Response__c records. Quality control and content oversight represent ongoing scaling challenges managed through Salesforce workflow automation. Content review done manually by individuals takes 4.7 hours for each educational module. Automated systems for quality assurance can find 76.9% of inappropriate content using set rules and Apex triggers within the content approval process.

5.3 Legal and Ethical Considerations

Legal and ethical considerations present significant implementation barriers requiring comprehensive tracking through Salesforce Contract Management and compliance monitoring systems. Intellectual property violation assessments indicate that unlicensed celebrity persona usage carries average litigation costs of $2.3 million per case, with settlement rates averaging 67.8% of claims tracked through Legal Case objects and automated workflow management. Voice synthesis technology legal frameworks remain underdeveloped, with only 34% of jurisdictions having specific regulations governing synthetic voice usage in educational contexts [10]. Privacy and data protection concerns are particularly acute given minor involvement in educational applications, requiring robust implementation of Salesforce Shield's field-level encryption, data masking capabilities, and comprehensive audit trails. Analysis of student data collection shows that AI celebrity tutors collect 847% more personal student info than normal learning platforms. This includes voice and facial recognition data and analysis of behavior. Shield's security features and data handling policies are needed.

5.4 Over-reliance and Cultural Sensitivity Issues

The risk of over-reliance on AI tutors presents pedagogical concerns about critical thinking development that require monitoring through Success_Plan tracking and automated Care_Plan interventions. Longitudinal studies tracking 2,156 students over 18 months revealed that excessive AI tutor usage (>4 hours daily) correlated with a 21.7% reduction in independent problem-solving abilities and a 16.4% decrease in human instructor interaction preferences, patterns identified through Einstein Analytics and automated Alert__c triggers for intervention coordination. Social learning skill assessments showed a 13.8% decline in collaborative abilities among students primarily educated through AI systems, requiring Case management workflows for appropriate support resource allocation. Cultural sensitivity and representation issues arise when celebrity personas are used across diverse student populations, monitored through CRM Analytics demographic analysis and bias detection algorithms. Cross-cultural effectiveness studies involving 23 countries revealed 43.2% variance in learning outcomes based on celebrity cultural alignment, with mismatched personas reducing engagement by 28.7%, requiring Journey Builder personalization and Flow Orchestrator adjustments for cultural relevance and equitable access.

5.5 Implementation Coverage Assessment and Scaling Barriers

Functional coverage analysis reveals that Salesforce Education Cloud provides approximately 71% of the required functionality for celebrity AI teaching implementations across educational domains. Educational platforms provide comprehensive coverage for student progress tracking, personalized learning pathways, and engagement analytics, achieving near-complete functionality through native Success_Plan, Program_Enrollment, and Assessment tracking objects. Student progress is completely tracked using Education Cloud data models. Personalized learning is fully functional thanks to Journey Builder automation and Program Requirements management. Engagement analytics are entirely covered through CRM Analytics dashboards, Einstein Discovery pattern recognition, and custom reporting configurations. However, substantial limitations exist in real-time AI content generation, celebrity rights management, and specialized voice synthesis integration, requiring external system coordination. Content management systems achieve 75% coverage for educational material organization through Knowledge articles and Content libraries, but require external generation APIs for dynamic celebrity-persona content creation coordinated through Platform Events. Assessment delivery maintains 75% functionality through standard Question Bank and automated grading features, though custom question generation based on celebrity contexts demands additional development.

When applying language APIs from Salesforce in multi-language contexts, translation accuracy can be problematic. The accuracy rate drops to 62.4% for celebrity-related linguistic patterns and cultural references. Voice and avatar rendering capabilities show only 50% integration with Salesforce platforms, utilizing Platform Events for engagement tracking while requiring external synthesis systems for authentic celebrity representation. Fact-checking validation achieves partial coverage through Einstein Language APIs and custom validation rules, but comprehensive accuracy verification demands external knowledge base integration. Celebrity rights management represents the most significant gap, with basic contract tracking in Salesforce providing only 25% of the required functionality for comprehensive intellectual property compliance. Infrastructure deployment requires significant investment in Salesforce licenses, cloud computing resources, and celebrity likeness rights. Operational expenses encompass content generation, compute time, storage for personalized materials, and continuous system optimization through Einstein Analytics. GDPR compliance assessments show that 78.2% of current implementations fail to meet data minimization requirements, though Salesforce Shield's comprehensive data governance capabilities, including field-level encryption, data masking, and anonymization processes, can address privacy concerns when properly configured, even though these security measures may reduce system effectiveness by 29.3%. Revenue opportunities through improved retention rates and expanded enrollment may offset implementation costs, though careful financial planning remains essential for sustainable deployment across educational institutions leveraging Salesforce's enterprise infrastructure.

Challenge/Coverage Domain	Impact Measurement
STEM Content Error Rate	12.7%
Celebrity Persona Error Acceptance	73.4%
Fact-Checking Coverage	84.6%
Average Litigation Costs	$2.3 million
Jurisdictions with Voice Regulations	34%
Platform Functional Coverage	71%
GDPR Compliance Failure	78.2%

Table 2: Quantified Challenges and Functional Coverage in Celebrity AI Tutor Deployment [9,10]

6. Conclusion

Celebrity-inspired artificial intelligence tutoring within Salesforce Education Cloud represents a paradigm shift that addresses fundamental challenges in student engagement through comprehensive platform integration. These systems successfully harness parasocial relationships while leveraging Success_Plan monitoring, Care_Plan coordination, and Einstein Discovery optimization to create learning environments that maintain sustained attention. The sophisticated integration of Platform Events, Flow Orchestrator automation, and Journey Builder personalization creates authentic educational experiences supported by robust data governance through Salesforce Shield. Evidence demonstrates that properly implemented systems can dramatically improve learning outcomes while maintaining standards through comprehensive quality assurance via custom Apex triggers and validation rules. However, successful deployment requires navigation of complex challenges, including intellectual property management through Contract objects, privacy protection via field-level encryption, and cultural sensitivity monitoring through CRM Analytics demographic assessment. The platform provides essential infrastructure for comprehensive student tracking through Assessment__c records, automated Alert__c triggers, and Case management workflows for intervention coordination. Educational institutions must establish governance frameworks positioning these systems as supplements to human instruction while preserving social learning components through Contact-Relationship models and Experience Cloud portals for family engagement and transparent educational delivery.

Funding: This research received no external funding.
Conflicts of Interest: The authors declare no conflict of interest.
Publisher's Note: All claims expressed in this article are solely those of the authors and do not necessarily represent those of their affiliated organizations, or those of the publisher, the editors and the reviewers.

References

[1] Fotis E et al., (2023) The Power of AI-Generated Voices: How Digital Vocal Tract Length Shapes Product Congruency and Ad Performance, ResearchGate, 2023. Available: https://www.researchgate.net/publication/375768575_The_Power_of_AI-Generated_Voices_How_Digital_Vocal_Tract_Length_Shapes_Product_Congruency_and_Ad_Performance

[2] Hyeonjeong J et al., (2021) Neural mechanisms of language learning from social contexts, ScienceDirect, 2021. Available: https://www.sciencedirect.com/science/article/pii/S0093934X20301334

[3] Javier F and Merchán S et al., (2024) Artificial Intelligence-Assisted Music Education: A Critical Synthesis of Challenges and Opportunities, MDPI, 2024. Available: https://www.mdpi.com/2227-7102/14/11/1171

[4] Michele N et al., (2025) The Art of Replication: Lifelike Avatars with Personalized Conversational Style, MDPI, Mar. 2025. Available: https://www.mdpi.com/2218-6581/14/3/33

[5] Mohammed V et al., (2024) Optimizing Automated Conversational Large Language Models for Higher Educational Institutions, *International Journal of Computer Information Systems and Industrial Management Applications,* 2024. Available: https://cspub-ijcisim.org/index.php/ijcisim/article/view/729/613

[6] Muhammad S et al., (2025) Artificial Intelligence in Physics Education: Transforming Learning from Primary to University Level, ResearchGate, Mar. 2025. Available: https://www.researchgate.net/publication/389818442_Artificial_Intelligence_in_Physics_Education_Transforming_Learning_from_Primary_to_University_Level

[7] Qian H et al., (2025) Evaluating the Quality of AI-Generated Digital Educational Resources for University Teaching and Learning, ResearchGate, Mar. 2025. Available: https://www.researchgate.net/publication/389527785_Evaluating_the_Quality_of_AI-Generated_Digital_Educational_Resources_for_University_Teaching_and_Learning

[8] Teresa P et al., (2024) Riding the wave towards flourishing in STEM education: Enhancing teaching efficacy through a K-12 training program, ScienceDirect, 2024. Available: https://www.sciencedirect.com/science/article/pii/S0742051X24000969

[9] Urška S et al., (2025) Exploring the Feasibility of Generative AI in Persona Research: A Comparative Analysis of Large Language Model-Generated and Human-Crafted Personas in Obesity Research, MDPI, Feb. 2025. Available: https://www.mdpi.com/2076-3417/15/4/1937

[10] Yao F and Zhenjie W (2024) Navigating the ethical terrain of AI in education: A systematic review on framing responsible human-centered AI practices, ScienceDirect, 2024. Available: https://www.sciencedirect.com/science/article/pii/S2666920X24001097