

Project Proposal - Serena Jonathan - 2306363

by Serena Jonathan

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Research Proposal: Helping Actors Who Live Alone to Learn Scripts Effectively Using AI- assisted Learning

Abstract

This proposal covers ScriptEcho, is an AI-assisted rehearsal application designed to help actors rehearse independently. It addresses challenges such as limited scene partners, low motivation, and inefficient memorisation through AI-generated voice assistance, adaptive feedback, gamified progress tracking, and accessibility features.

Serena Jonathan (2306363)

2306363@student.uwtsd.ac.uk

Preferred Supervisor: Mark Huntly

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1. Introduction

This project proposal focuses on the development of ScriptEcho, an AI-assisted rehearsal application designed to help actors memorise and rehearse scripts more effectively, particularly those who often practice alone. The idea stems from the common challenge faced by actors, whether students, professionals, or enthusiasts who live alone of finding suitable scene partners or maintaining motivation during solitary rehearsal sessions. Traditional memorisation techniques, such as rote learning and repetition, can be time-consuming and may not cater to individual learning preferences. [1] Research suggests that interactive and auditory learning tools can enhance memory retention and engagement, supporting the potential of an AI-assisted rehearsal system. [2]

ScriptEcho aims to provide users with an interactive rehearsal experience through AI-generated voice assistance, positive reinforcement, and gamified progress tracking. The application allows users to upload scripts, rehearse scenes with a virtual AI partner, and receive feedback designed to build confidence and motivation. Similar AI-driven tools in education and language learning have demonstrated significant improvements in learner engagement and self-efficacy. [3] This suggests comparable benefits in the context of acting and performance training.

The motivation behind ScriptEcho lies in combining technology with creativity to support performing artists in an accessible, encouraging, and innovative way. By bridging the gap between artificial intelligence and the performing arts, the project seeks not only to enhance the memorisation process but also to explore how interactive technologies can positively impact confidence, independent learning, and the overall rehearsal experience.

2. Background to the Proposed Research

Existing AI rehearsal systems frequently lack features that maintain sustained motivation, such as progress tracking, adaptive difficulty, or personalised encouragement. Addressing this gap, the integration of artificial intelligence (AI) into learning and training environments has grown considerably, offering new possibilities for skill improvement and independent practice. [4] Within the performing arts, AI-based tools have the potential to aid actors significantly, providing innovative ways to support memorisation, rehearsal efficiency, and engagement. Recent research in AI-assisted learning highlights the capacity of digital platforms to personalise experiences, adapt to user needs, and enhance cognitive outcomes through auditory, visual, and interactive methods. [5] [6] These studies collectively aim to understand how technology can facilitate learning processes that are traditionally reliant on in-person guidance, suggesting that similar principles could benefit actors seeking independent rehearsal solutions.

Despite these promising developments, current studies reveal several limitations relevant to the performing arts context. Much of the literature focuses on general education or classroom-based learning, rather than creative performance. This leaves gaps in understanding how AI can support actors' memorisation and rehearsal. For example, AI-powered foreign language learning tools like Babbel, Memrise, and Duolingo are designed to provide immediate feedback, ensuring learners pronounce words correctly and follow the proper sequence while also offering a gamification feature to boost motivation to see positive results [7] A similar approach could be applied in the context of ScriptEcho, enabling performers to practice their lines accurately, reinforcing memorisation and sequence. It will act as a virtual scene partner to solo rehearses. By leveraging AI

in this way, it could help actors internalise dialogue patterns and improve performance, mirroring the benefits observed in AI-assisted language learning. [8]

Another limitation identified involves user engagement and the effectiveness of motivational design. While gamification has shown potential for increasing participation in educational AI based apps, few studies investigate its role in rehearsal environments [9] Research shows adaptive AI feedback increased engagement, whereas static or generic guidance led to lower participation, this shows users disengage when feedback is not tailored to their skill level or learning pace. [10] Aligned with the methodological layer of the research onion, this suggests that combining qualitative user feedback with quantitative performance metrics can inform system design to improve engagement and learning outcomes. ScriptEcho proposes to combine AI voice assistance with structured, gamified features, providing immediate feedback and reinforcing confidence-building strategies. By integrating these elements, *ScriptEcho* aims to overcome barriers to engagement noted in previous research.

Furthermore, accessibility and inclusivity were also underrepresented. Many AI-driven learning platforms fail to fully support diverse learning styles and sensory preferences. Research shows that hybrid approaches which include combining visual, auditory, and interactive formats, improve retention and understanding. [11] However, such methods have yet to be explored in depth within the performing arts field, especially with applications catered towards script memorisation. ScriptEcho will address this by synchronising visual line-tracking with AI-generated speech. It will also incorporate accessibility practices by including a colour-blind friendly interface, labelled UI elements for screen reader compatibility for those with impaired vision. [12] This aligns with the philosophical layer of the research onion, recognising that actors construct knowledge actively through engagement, reflection, and multisensory interaction. [13] By integrating accessible features, ScriptEcho aims to provide an inclusive rehearsal environment that supports a wider range of performers and learning needs.

Looking ahead, recent studies emphasise the potential of adaptive AI systems capable of providing encouragement and real-time feedback. It also suggests that the future AI-supported learning systems will be increasingly adaptive and personalised, capable of responding to individual users' pace, engagement, and learning preferences. Studies also emphasise the integration of multimodal formats [14], gamification, and intelligent feedback to enhance retention, motivation, and skill development, while prioritising accessibility and inclusivity through features such as screen-reader compatibility and colour-blind friendly interfaces. At the methodological and implementation layers, these developments highlight the need for systematic evaluation, including usability testing, performance tracking, and user surveys, to ensure effectiveness and inform iterative design.

In summary, research shows that while AI-assisted tools have significant potential to enhance independent learning and engagement, current literature highlights limitations, including insufficient focus on creative performance, limited participant diversity, and lack of motivational and interactive design. Therefore, ScriptEcho aims to addresses these gaps by offering a multimodal, gamified, and adaptive rehearsal platform.

3. Research Problem statement

Actors who rehearse independently often struggle with motivation, memorisation, and access to suitable scene partners. Existing AI learning systems lack adaptive feedback, gamified engagement, and accessibility features that support diverse learning needs, especially in the creative and performing arts field. This project aims to address these challenges by developing ScriptEcho, an AI-assisted rehearsal application designed to aid with solo practice sessions that provides personalised, multimodal, and inclusive rehearsal experiences to enhance performance confidence, engagement, and independent skill development.

4. Research Aim & Objectives

Research Aim

The primary aim of this project is to design and develop ScriptEcho, an AI-assisted rehearsal application that supports actors in memorising and rehearsing scripts independently. The project seeks to address the challenge of rehearsing without a scene partner by providing an intelligent, voice-driven interface capable of delivering adaptive feedback, positive reinforcement, and accessibility features. Through the integration of artificial intelligence, gamification, and inclusive design principles, ScriptEcho seeks to enhance rehearsal efficiency, motivation, and confidence among actors. In addition to its practical application, the project also aims to address significant research gaps on AI based learning that caters to creatives skill development, not only classroom-based skill learning.

Research Objectives

1. **To critically evaluate** existing AI-based language based and learning tools, identifying key features, design gaps, and opportunities for innovation within the context of acting and performance training.
2. **To conduct primary research** through a survey and/or interviews with actors to identify user needs, desired features, and common challenges in solo rehearsal, providing data to inform the app's design.
3. **To design and prototype** an interactive, multimodal rehearsal application that incorporates AI-generated voice assistance, adaptive feedback mechanisms, and gamified progress tracking.
4. **To implement and test** accessibility features, including colour-blind friendly interfaces and labelled UI elements compatible with screen readers, ensuring usability for a diverse range of users.
5. **To assess user engagement and performance outcomes** through usability testing and feedback, evaluating how the application supports memorisation, motivation, and independent rehearsal.
6. **To reflect on the technical and creative development process**, identifying challenges, limitations, and potential directions for future enhancement and scalability.

5. Methodology

5.1 Methods

This project adopts a mixed-methods approach, combining qualitative and quantitative research to capture user insights alongside measurable performance outcomes. Guided by Saunders et al.'s Research Onion, [15] the methodology progresses from philosophical assumptions to practical techniques. A constructivist stance underpins this study, reflecting the view that knowledge is actively constructed through experience and interaction. [16] This perspective is present in how actors develop understanding and skill through rehearsal, reflection, and feedback. An inductive approach will also be adopted, meaning that insights gathered from user data, such as surveys and interviews with actors, will directly influence the design and development of ScriptEcho's prototype. Surveys will collect quantitative data on rehearsal habits, motivational challenges, and preferred features, while interviews will provide in-depth qualitative insights into user experiences. The software development process follows an iterative, modular design, separating AI processing, user interface, and data storage layers to ensure scalability and maintainability. [17] Evaluation will involve usability and accuracy testing, memorisation, and accessibility outcomes. Quantitative data will be analysed using statistics, while qualitative responses will be analysed to interpret any patterns or themes enhancing validity and reliability. This approach ensures ScriptEcho is both evidence-based and user-centred, aligning technical development with actors' real-world rehearsal needs.

5.2 Materials

Primary data will be collected via Google Forms, with informed consent obtained and responses anonymised to comply with ethical standards. Data will be stored locally during testing to maintain privacy. Accessibility validation will be conducted using Google Accessibility Scanner. Quantitative data will be analysed using Excel. The prototype will be developed using JavaScript and React for the front-end, with Python used for AI integration. Text-to-speech and natural language processing libraries will also be used to enable AI-generated dialogue delivery. No specialised hardware will be required, although optional cloud resources, such as Google Cloud Text-to-Speech API, may be utilised for voice synthesis.

6 Project Plan

The project will be completed over a 16-week period, progressing through research, design, development, and evaluation phases. Each stage is designed to build upon the previous one, ensuring progress and alignment with the research objectives.

Weeks 1–2: Preliminary Research and Planning

Conduct a detailed literature review on AI-assisted learning, gamification, and accessibility in creative performance contexts. Refine research objectives, finalise methodology, and ensure ethical considerations are considered.

Weeks 3–5: Primary Data Collection

Distribute online surveys and conduct semi-structured interviews with actors and drama students. Analyse responses to identify common rehearsal challenges, user needs, and desired application features.

Weeks 6–8: System Design and Architecture

Develop wireframes and system architecture for ScriptEcho, detailing the modular design for AI processing, user interface, and data storage. Specify technical requirements, software needs, and integration strategy.

Weeks 9–11: Prototype Development

Implement the prototype using JavaScript, React, and Python for AI integration. Integrate text-to-speech and NLP libraries to support dialogue generation, adaptive feedback, and gamification elements.

Weeks 12–13: Testing and Evaluation

Conduct usability testing and accessibility validation using Google Accessibility Scanner. Gather user feedback and evaluate performance through both quantitative metrics and qualitative insights.

Weeks 14–16: Refinement and Final Documentation

Refine the prototype based on testing results. Compile findings, discuss limitations, and present recommendations for future improvements. Prepare final documentation, presentation materials, and supporting resources for project presentation.

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GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

70/100

PROJECT PROPOSAL – ACCA6020 INDEPENDENT PROJECT

Student Serena
Joseph
Mark 70

Intro / A&O (400 words)		
Project title; Identification of a specific problem to be investigated; Well-defined aims and SMART objectives; Explaining why this project is worth doing; Discussion of what the project needs to do in order to be a success; Description any deliverables that will be produced at the end of the project	20	14
A brief introduction but it does give an idea and context to the project. A little more detail would have been beneficial.		

Background to the Project / Literature Review (400 words)		
Description of how the work to be done by in the project relates to the work identified in the literature review; Discussion of any ethical issues raised by the project Identifying what has already been done within the field; Topic familiarity; Brief literature review using appropriate sources – 6-8 journal papers and book chapters rather than just websites; Selection of relevant models & concepts A good range of sources backs up some good research into gaps in the field. More detail as to how AI could help would have been beneficial here but research related to the topic is good. A well thought out and constructed problem statement. The aim should be more specific and SMART here as it maybe covers too broad a scope. Well thought out objectives, could feed into the aim if it were specific. These are reasonably SMART but could be more specific and timely with measurables.	20	15
Project Design (500 words)		
Clear statement of which development methods are to be	30	18

used and why they are appropriate; Clear statement of which tools are to be used and why they are appropriate; Clear description of how data collected will be analysed Project design is reasonably thought out. More detail to the methodology would have been desirable in how some of the steps would be achieved. Good consideration of research methods and research onion.		
Resources / Planning (200 words)		
List of any deliverables; Clear diagram showing both timing and resource use; Completed ethics form; Limited and relevant appendices A nicely thought-out plan, Timescales look reasonable, however no Gantt chart or supporting materials. A well thought out and detailed ethics form submitted.	15	9

Document Presentation		
Correct spelling, grammar and punctuation; Flow of narrative/fluency; Coherence; Word processed ; Correct use of referencing with bibliography; Strict word limit Well laid out and presented document, sectioned well and referenced in the correct manner. Good narrative running through as well.	15	14
TOTAL	100	70

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