Serious game development for dementia patients using preferred music, music therapy

**LW Fourie**

**31607500**

Research proposal for the research project submitted in *partial* fulfillment of the requirements for the degree xxxxxxxx in xxxxxxxxxxx in at the North-West University

Supervisor: …

Co-supervisor: …

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Table of contents

[1 Introduction 2](#_Toc474493500)

[2 Background to study 2](#_Toc474493501)

[3 Problem statement 2](#_Toc474493502)

[4 Paradigmatic perspective 2](#_Toc474493503)

[4.1 Meta-theoretic assumptions 2](#_Toc474493504)

[4.2 Theoretic assumptions 2](#_Toc474493505)

[4.3 Methodological assumptions 2](#_Toc474493506)

[5 Research aim and objectives 2](#_Toc474493507)

[5.1 Research aim 2](#_Toc474493508)

[5.2 Research objectives 2](#_Toc474493509)

[5.3 Study design 2](#_Toc474493510)

[6 Research methodology 2](#_Toc474493511)

[6.1 Study context 2](#_Toc474493512)

[6.2 Population and sampling 2](#_Toc474493513)

[6.2.1 Population 2](#_Toc474493514)

[6.2.2 Sampling 2](#_Toc474493515)

[6.2.2.1 Sampling technique 2](#_Toc474493516)

[6.2.2.2 Sampling size 2](#_Toc474493517)

[6.2.2.3 Inclusion criteria 2](#_Toc474493518)

[6.2.2.4 Exclusion criteria 2](#_Toc474493519)

[6.3 Recruitment of participants 2](#_Toc474493520)

[6.4 Process of obtaining informed consent 2](#_Toc474493521)

[6.5 Data collection 2](#_Toc474493522)

[6.5.1 Data collection tool 2](#_Toc474493523)

[6.5.1.1 Development of data collection tool 2](#_Toc474493524)

[7 Rigour / Validity & reliability 2](#_Toc474493525)

[8 Ethical considerations 2](#_Toc474493526)

[8.1 Permission and informed consent 2](#_Toc474493527)

[8.2 Anonymity 2](#_Toc474493528)

[8.3 Confidentiality 2](#_Toc474493529)

[9 Executive Summary 2](#_Toc474493530)

[Bibliography 2](#_Toc474493531)

[Annexure A: Data collection tool 2](#_Toc474493532)

[annexure B: informed consent 2](#_Toc474493533)

[Annexure C: recruitment material 2](#_Toc474493534)

List of Tables

[Table ‎9‑1: Table title (use insert caption to insert this reference) (CptionTop\_Tbl style) 2](#_Toc505765088)

List of Figures

[Figure ‎9‑1 : Figure title (use insert caption to insert this reference) (CptionTop\_Tbl style) 2](#_Toc474494063)

RESEARCH PROTOCOL (TOC\_HEADING sTYLE)

# Introduction (HEADING 1 STYLE)

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# Background to study

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# Problem statement

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# Paradigmatic perspective

## Meta-theoretic assumptions (Heading 2 style)

## Theoretic assumptions

## Methodological assumptions

# Research aim and objectives

The aim of this research project is to enhance the well-being of dementia patients through the improvement of music therapy-based interventions. To achieve this, the research will build upon existing studies and incorporate their findings to establish a clear research aim and objectives that prioritize the patient's wellness.

## Research aim

The aim of this research project is to investigate the potential of using preferred music as a serious game in music therapy to enhance cognitive function, mood, behaviour, and overall quality of life for patients with dementia. Through the use of a carefully designed serious game that incorporates music preferred by the patients undergoing therapy, the project seeks to contribute to the development of innovative and effective music therapy interventions for patients with dementia, and ultimately improve their quality of life.

## Research objectives

To achieve this goal, the project has several key objectives:

1. a Comprehensive study will be conducted on the topics of dementia, music therapy, and preferred music to provide a strong theoretical foundation for the project. These studies are found using Google Scholar, NWU Library, Alzheimer’s Association, and more medical databases using different combinations of key word searches to find studies containing “Music therapy”, “dementia”, “Preferred music”, ”Serious game”.
2. a Serious game and a remote will be designed to facilitate patients' acceptance of the intervention and their understanding of the tasks.
3. a Program will be developed that can interpret music uploaded by caregivers to incorporate preferred music into the music therapy-based serious game. The program will be tested on various types of music and adjusted to give the best experience to patients by adjusting the difficulty to acceptable levels, if an acceptable level cannot be reached for a specific song it will prompt care takers to take note that the song might be too difficult for patients. This will be achieved using the librosa library for python, giving python the ability to dissect music.
4. An approach will be established to identify a patient's preferred music and provide recommendations to caregivers on how to acquire specific genres of royalty free music.
5. Expert reviewers will be used to determine the useability and reliability of the serious game as an intervention method for dementia care, thus giving the ability to review features and make adjustments according to their recommendations.

These objectives will be pursued systematically to develop a viable and effective music therapy based serious game intervention for patients with dementia.

## Study design

# Research methodology

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## Study context

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# Rigour / Validity & reliability

# Ethical considerations

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## Permission and informed consent

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## Anonymity

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## Confidentiality

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# Executive Summary

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Bibliography (TOC\_HEADING sTYLE)

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Annexure A: Data collection tool(TOC\_HEADING sTYLE)

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annexure B: informed consent (TOC\_HEADING sTYLE)

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Annexure C: recruitment material (TOC\_HEADING sTYLE)

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