

L5 Changemakers: Creativity and Value Creation Assignment 1: Innovation & Research.

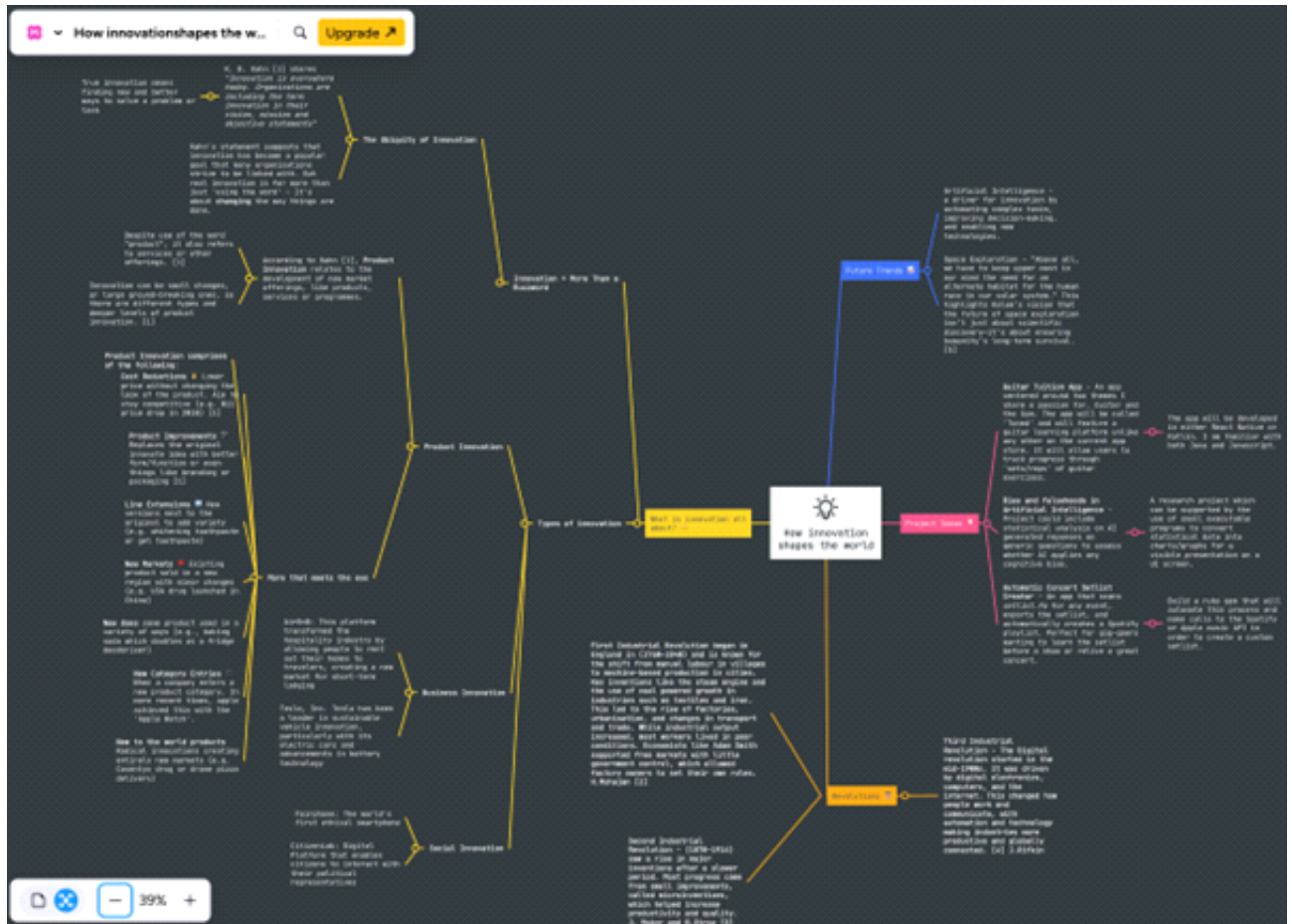
29 October 2024 20:18

Matthew Evans 2319368

Ideation and Mind Map

17 August 2025 20:26

Link to mind-map: <https://mm.tt/map/3717768103?t=4lkdTfsxFp>



Question 1

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Project Aim: To create a fun and easy-to-use app that helps people learn to play the acoustic/electric guitar by combining music lessons with a gym-style workout/practice routine.

Objectives:

1. Design an Intuitive Interface

The plan is to have an easy-to-use user interface so that students don't need to waste time by referring to documentation or YouTube tutorials. Chala and Ponomarenko [6] highlight that well-structured fitness interfaces increase user retention by simplifying navigation and visually reinforcing user goals.

2. Deliver Content in Structured and Manageable Steps

Effective learning works best when broken into small steps. Similar to a "structured workout plan", the curriculum will be split into clear modules called "workout sessions." Each session will focus on a single musical skill or idea. Gordon [7] notes that using small tasks in fitness apps helps users stay consistent and make steady progress.

3. Include interactive features to promote regular practice

To drive user commitment, the app will include features that personalise the experience and promote regular practice. Progress tracking and reminder notifications will be integrated to sustain motivation. Zu et al. [8] suggest that such interactive tools enhance user retention in mobile fitness applications, and similarly they can help reinforce good practice habits in music learning.

4. Incorporate Audio-Visual Support for Independent Learning

The app will include video demonstrations, audio demonstrations (i.e. what a scale should sound like) and tablature overlays. *"Tablature eliminates such ambiguity of fingerings, thus players can easily play a guitar. Therefore, tablature is helpful to many guitar players, particularly beginners, in practicing the guitar."* K. Yazawa [23]

These tools will enable users to compare their performance to a correct model, which drives independent learning.

5. Include Gamification

Gamification has proven benefits in educational contexts, particularly in promoting regular engagement. As highlighted by A. Cheng [9], gamified elements in music learning apps such as points, badges, and progress milestones encourage frequent practice.

6. Align Lessons with the Gym-Based Theme

Lessons will be called "workouts", each consisting of targeted exercises aimed at user progression in specific techniques and knowledge areas of guitar playing. For example, a "Picking Power" programme could include alternate picking drills, string skipping exercises etc.

Question 2

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I will adopt a **pragmatic research approach** for the development of *Toned app* as the priority lies with practical outcomes. This will allow for the use of both **qualitative methods**, such as user feedback and motivation, and **quantitative methods**, including app usage metrics and progress tracking.

As M.Anthony [10] notes, *“pragmatism facilitates the integration of diverse methodologies and promotes an iterative cycle of testing and refinement.”* This quote highlights that a pragmatistic approach aligns well with software development as continuous testing and refinement is a core principle in agile software delivery.

To solidify my choice, Anthony [10] suggests, pragmatism will support the use of methods best suited to the research question. When applied to *Toned app*, if users disengage from certain workouts, I can conduct short surveys to explore underlying reasons, such as task difficulty or low motivation. Findings will then inform subsequent design changes during testing or even in production.

Question 3

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Research areas and associated keywords

Research area	Associated keywords/phrases/tags
Instrument	electric guitar, guitar, string instrument
Skill	practice, technique, phrasing, legato, economy picking, sweep picking, alternate picking, vibrato, hybrid picking, palm muting, hammer-ons, pull-offs, slides, tapping, fingerpicking
Digital delivery	Mobile app, machine learning, software, user-interface, UX design
Motivation model (targeting common gym motivators)	Gamification, engagement, habit, workout, fitness
Target audience	Self-directed, young adult, adult learner
Learning models	Music education, curriculum, repetition

Table 1 – Research areas and associated keywords in digital guitar learning

I will use UWTSD LibrarySearch to access full-text academic articles. Subject-specific databases such as “RILM Abstracts of Music Literature” and ERIC will support the theoretical framework and instructional design of the app’s user interface. For research into motivation models and workout-related engagement, I will consult Google Scholar with applied ‘library links as demonstrated in **Unit 1 Topic 3 – Known Knowns**.

An example Boolean search query for research:

```
("electric guitar" OR "electric guitars" OR "electric-guitar" OR "electric-guitars") AND ("guitar" OR "guitars" OR "guitarist" OR "guitarists") AND ("guitar tuition" OR "guitar lessons" OR "guitar classes" OR "guitar training") AND ("mobile learning" OR "mobile education" OR "online learning" OR "digital learning") AND ("app design" OR "application design" OR "mobile app design" OR "software design") AND ("gamification" OR "game design" OR "game development" OR "gamifying") AND ("fitness app" OR "exercise app" OR "health app" OR "workout app") AND ("UX design" OR "user experience design" OR "UI/UX design" OR "user interface design") AND ("workout" OR "workouts" OR "exercise" OR "exercises")
```

To ensure relevance and credibility, I will apply the CRAAP criteria [11] and prioritise peer-reviewed articles with recent publication using older resources where appropriate. Controlled vocabulary (see Table 1) will guide focused searches on topics such as legato guitar technique. I will maintain a search log and use citation chaining through platforms like Scopus to identify additional relevant studies.

Research Strategies

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Question 1

Strategies to Enhance Validity, Reliability, Generalisability, and Ethical Considerations

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To ensure the validity of my research methods, my research will be well-structured and inspired by Rodden, Hutchinson, and Fu's HEART framework [12]. This framework aligns user experience metrics with specific goals, such as **Happiness, Engagement, Adoption, Retention, and Task Success**.

Research from S. Roopa and M. Rani [13], states that well-designed surveys and questionnaires can significantly enhance the **reliability and consistency** of research findings, particularly when they follow a structured format and include piloting to reduce bias.

Questionnaire Design

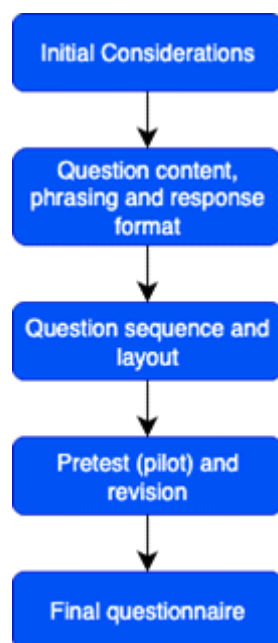


Fig. 1 Effective questionnaire design pattern based on [13]

Beta testing

To improve the generalisability of my findings, I will recruit beta testers with varying levels of experience playing guitar. As Henrich [14] points out, relying on similar participant groups such as students who favour specific genres can limit broader relevance.

Question 2 Research Strategies and Pilot Method

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This project will use a mixed-methods approach for data-collection, combining quantitative data (surveys and in-app metrics) with qualitative insights (interviews and feedback). This provides a balanced view of user engagement and perception [15].

To better understand user needs and learning habits, user interviews will be conducted during the early design phase of the app. These interviews will enable me to gather essential qualitative data as it will focus on open-ended questions to explore how users approach guitar practice and what they find motivating or challenging with *Toned app*.

The Likert-scale will be my key quantitative research method. I will conduct surveys at different stages of the app's development, and the benefit will be that participants can rate their agreement with statements related to:

- Overall design
- Motivation
- Satisfaction
- Ease of Use

A pilot survey (Appendix A), created in Google Forms, will be tested with a small group of prospective users at the very start of development. Feedback will potentially shape the design of the app.

Question 3

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Quantitative Analysis Methods for Toned App

1. Descriptive Statistics

As Gravetter [17] explains, descriptive statistics provide a clear summary of large datasets before deeper analysis. I will use them to examine average session length, login frequency, and lesson completion rates, revealing trends in app usage and adoption.

2. Inferential Statistics

Inferential statistics let researchers draw conclusions about a larger population from a smaller sample. As Thompson [18] notes, they help determine if group differences are due to chance or real effects using hypothesis testing. In the pilot phase, I will use them to assess differences in motivation and engagement between beginners and experienced users.

3. Correlation Analysis

Y.-H. Park and colleagues [19] show that correlation analysis of app analytics can reveal strong links between performance metrics (e.g. downloads) and engagement factors (e.g. user numbers, app rankings). Similarly, I will analyse how in-app behaviours like completed lessons and active sessions relate to external indicators such as reviews and downloads.

Qualitative Analysis Methods for a Guitar/Gym App

1. Thematic Analysis

Braun and V. Clarke [20] point out, thematic analysis is especially helpful for understanding user experiences in practical contexts like app development. For *Toned app*, this might involve collecting user feedback to explore what motivates them to practise, what hinders their engagement, or which lesson types they find most rewarding.

2. Content Analysis

As Krippendorff [21] explains, content analysis allows researchers to “make replicable and valid inferences from texts to the contexts of their use,”. I can apply this to app store reviews of similar music learning apps, tracking how often terms like “boring,” “motivating,” or “too hard” are mentioned.

3. Discourse Analysis

Discourse analysis focuses on how language is used in context, examining patterns, meanings, and structures in communication. Duolingo, for example, has used discourse analysis to study user-generated content and feedback, helping them refine in-app messaging and adapt learning pathways to better match user expectations [22].

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Mind map references

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Appendix

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Pilot Survey using Google Forms

To gain an understanding of people's learning preferences, I made a questionnaire Questions included. [View the questionnaire here](#)

Screenshots/Evidence of topic completion

Unit 1 topic 1

Definition

According to the Cambridge Dictionary, "innovation is a new idea or method, or the use of new ideas and methods."

Reflect

Make a list of 5 things you have used or activities you have engaged in that would not have been around 10 years ago.

Consider different aspects of your life, such as **study, preparing meals, entertainment** and **communication**.

Which of these has changed your life for the better and why?

1. Morsia fitness app – a revolutionary way to track meals and exercises
2. Android Auto – released just under 10 years ago. Allows me to use my cars display as a multimedia device
3. Disney Plus – streaming service
4. ChatGPT - large language model chatbot created by OpenAI that can engage in human-like conversations, generate various types of text (like articles, essays, or code), and answer questions

Tesco Scan as you shop



Unit 1 Topic 1 completed!

You should now:

- Recognise the evolutionary positive impact, importance and benefit of creativity and innovation in society.
- Identify concepts used to describe the progress of technology and innovation.
- Think of yourself as someone capable of being creative (if you don't already)

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Unit 1 Topic 2



Reflect

Describe the last time you felt as though you were being creative. For example, you might have been painting, playing a musical instrument, sewing, or cooking. **How did it make you feel?**

Answer: Playing guitar is when I last felt strongly creative. Guitar allows you to **channel your thoughts and emotions** into sound. Whether you're strumming a chord progression or improvising a solo, you're making something uniquely your own—a **core element of creativity**



Check

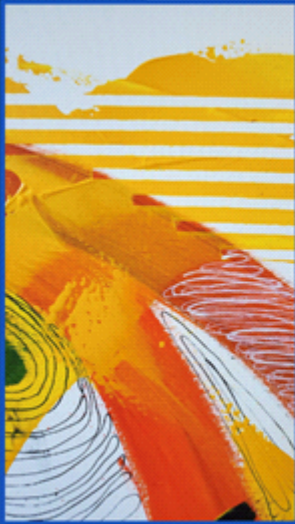
Using creativity to **avoid stress** is:

- ✕ A contemplation tool
- ✓ A distraction tool
- ✕ A means of self-development to face challenges by building up self-esteem and confidence

Correct!

When we use creativity simply to avoid something challenging or ignore something we find stressful, it is a **distraction tool**.

Only when we use creativity to give us the mind space to reassess problems in our lives and make plans can we consider it a **contemplation tool**.



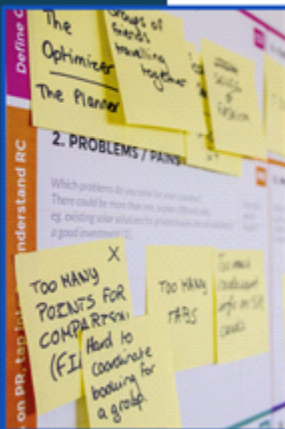
✓ You have completed Section 1!

You should now be able to:

- Recognise the link between creativity and feelings of wellbeing
- Identify ways in which you can reclaim your creative confidence or inspire creativity in others.

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✓ You have completed Section 2!

Upon completion of this sub-section, you should be able to:

- Hold a conversation that can confidently include the definitions of Ontology, Epistemology and Axiology
- Define your research philosophy using this terminology
- Understand how your philosophy can impact your investigation.

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✓ You have completed Section 3!

Upon completion of this sub section, you should be able to define your research philosophy as one of five constructs.

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✓ Unit 1 Topic 2 completed!

You should now:

- recognise the link between creativity and feelings of wellbeing and understand how to strengthen that link in your own life;
- define your research philosophy using the new terms Ontology, Epistemology and Axiology and understand how these philosophies can impact your investigation;
- define your research philosophy as one of five constructs.

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Unit 1 topic 3



✓ You have completed Section 1!

You should have rediscovered appropriate databases of what is known in your area of research.

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? Check

1. A keyword is like a...

- ✗ A word that unlocks others.
- ✗ A word like a hashtag that summarises the meaning of a sentence.
- ✗ A way of distilling meaning that can be used to search databases.
- ✓ All of the above.

Correct!

A keyword is all of these descriptions.

Check

2. We can locate the keywords in our research by...

-  Asking the library staff
-  Using a piece of software
-  Remove all superfluous words

Correct!

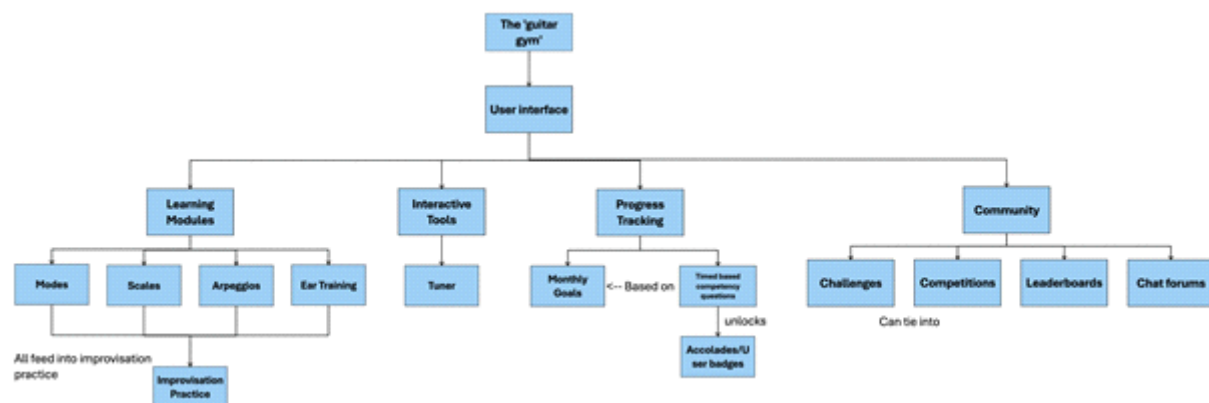
Apply

After watching the video, **create your own concept map**.

Use whatever you feel most comfortable with – an application like Microsoft Whiteboard, or a real whiteboard, or just pen and paper.

Try and identify **propositions** and **crosslinks**, and how these would apply to how you research.

Guitar Gym Application Concept Map



Reflect

Consider your research assignment.

Can you think of a **focus question** that you could outline what is going to be in or out of scope for your research?

Write it down using the Notes icon down below or elsewhere.

Research question: **Is there a link between improved mental health and guitar playing?**



✓ You have completed Section 3!

Upon completion of this sub-section, you should be able to create your own concept map and come up with concepts that you can use for your literature search.

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Unit 2 topic 2



✓ You have completed Section 1!

You should now be familiar with different methods for collecting and analysing qualitative data that you can use in pursuit of your research and understand how the sample of data that you are collecting reflects on your research.

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Check

In this knowledge check activity you will be presented with three research questions.

Question 1 of 3

What do we call it when we reduce the data of the population into a smaller manageable unit? We call it a...

☒ Sample

☐ Snowball

Correct!

A sample is a group of people, objects, or items that are taken from a larger population for measurement. The sample should be representative of the population to ensure that we can generalise the findings from the research sample to the population as a whole (Bineham, 2006).

Check

Question 2 of 3

Which of the following are relevant reasons for why we have to reduce the data we research into a smaller unit? (Choose which ones you think apply)

☒ Your time and resources may be stretched

☒ There are limited people who have experiences you are studying

☒ There are limited people/results with the relevance to the area you are studying

Correct!

If your sample size is large, it may limit your ability to produce findings that represent your population as a whole. It is therefore good practice for triangulation purposes to recruit a variety of respondents (e.g., children, adults, service users and providers).

Check

Question 3 of 3

When you select a sample from the population by picking the names out of a hat, what type of sampling are you conducting?

☐ Unusual sampling

☒ Random sampling

☐ Stratified sampling

Correct!

In this approach, every piece of data is considered to be equally relevant. This means if you include it in your research it is based on a random chance whether it's included or excluded from the sample you study.

✓ Unit 2 Topic 2 completed!

You should now:

- Be familiar with different methods for collecting and analysing qualitative data including data sampling.
- Be able to consider how the acquisition of your data will impact your research.
- Understand your approach to collecting data for your research.

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Unit 4 Topic 1



✓ You have completed Section 1!

You should now be able to imply a numerical precision to arguments in a casual way that brings a lack of precision to our work.

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