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Assignment 1: Innovation & Research.

Changemakers: Creativity and Value Creation

ACCA5033

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Introduction

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This project proposal explores how creativity and innovation can be used to develop solutions that create value for individuals and society. The assignment focuses on generating a project idea related to computing and applying research and design thinking methods to develop it further. The proposal includes a mind map that explores innovation and potential project ideas, followed by clearly defined research aims and objectives. It also outlines the research philosophy, search strategies, and research methods that will be used to investigate the chosen topic. The selected project idea focuses on developing a productivity and focus mobile application for students, which aims to help improve concentration, organisation, and study habits through digital technology.

Mind Map contents

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Creativity and innovation in Computing

Innovation and society.

Innovation has a massive and important role in shaping our modern society. This is even more visible in the computing and information technology fields. Technology has changed so much in the last ten years; this is mostly due to innovation. New innovations in technology will basically result in a transformation and improvements in the way we communicate, solve problems, learn and work. In computing, innovation does not only refer to hardware or software improvements, but it also extends to improving the user experience, digital services and behavioural technologies. According to Schumpeter's theory of innovation, when a new combination of technologies disrupts existing systems and then create economic and social value. This applies to multiple fields not only It when it comes to innovation. [1][2]

The digital innovation has managed to successfully influence our productivity, lifestyle and education. Tools such as applications, Artificial Intelligence models and the cloud platforms has managed to demonstrate that the creativity in design and user functionality has delivered many measurable social benefits to the average person, totally transforming our daily lives. The term innovation involves both the generation of the idea and the practical implementation. This means that creativity alone is not enough without proper structured problem-solving implementation

Creativity in problem solving

The creativity term within the computing environment is often closely linked to the identification of the user's needs and the design of solutions to benefit the experience of the user and improve the efficiency of the system. The main attributes of creative problem solving are ideation , prototyping and iteration as a form of a mechanism. This will work like a mechanism to improve creative problem solving , instead of being solely focused on the technical feasibility . An excellent creative computing solution will address the usability, accessibility and users engagement.

Modern digital and technological products manage to have a success not only because of their use of advanced technologies, but because they will actively align with the human behaviour and therefore keeps the user engaged. The human centred design will improve the adaption and effectiveness of the product and improve the satisfaction of the user. Creativity will therefore become a strategic tool rather than an artistic concept [3].

Areas of Personal interest

I have explored some different potential project concepts within computing, this include:

Mobile apps development
Productivity tools
Student learning tools
Student planning tools
Design and user engagement
Positive habits forming and wellbeing digital systems.

These concepts aligns with the current trends that the technology impacts negatively human behaviour, and also can have impacts on the psychology of the human [4].

Problems identified with students

This are some of the issues commonly seen among students

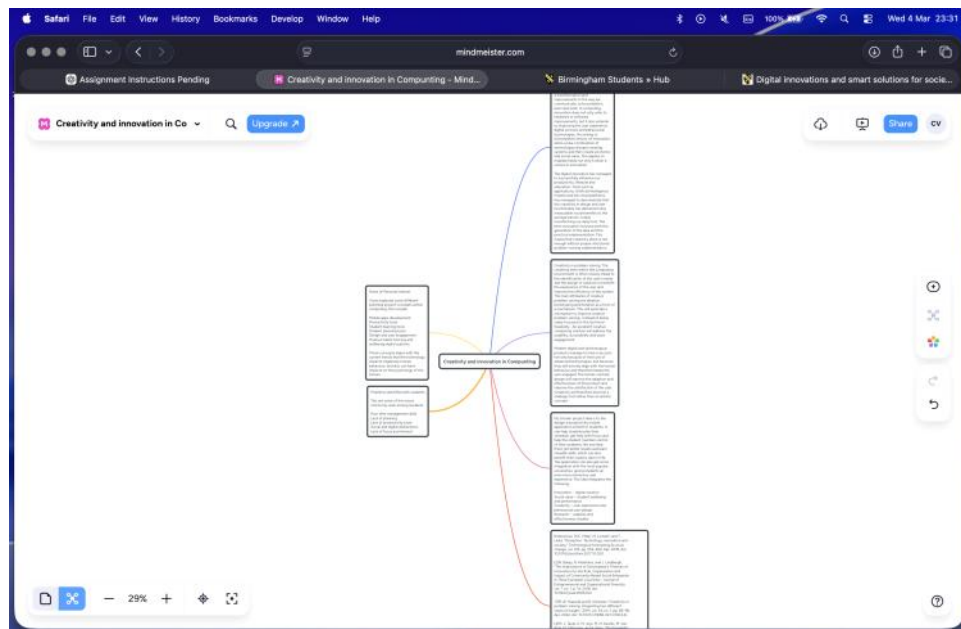
Poor time management skills
Lack of planning
Lack of productivity tools
Social and digital distractions
Lack of focus and interest

My chosen project idea is to the design a productivity mobile application aimed for students. It can help students plan their schedule, get help with focus and help the student maintain control of their academic life and help them get better results and learn valuable skills, which can also benefit their careers, later in life. The application can also get some integration with the most popular universities, giving students an even more immersive user experience. This idea integrates the following [5].

Innovation - digital solution
Social value – student wellbeing and performance
Creativity – user experience and behavioural user design
Research – usability and effectiveness studies

Mind map and link

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Creativity
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Mind Map can be accessed in full by pressing on the icon. Made using Mind Meister

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The Aim, the objectives and the research area

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My project title is designing a productivity, tracker and wellbeing mobile app. This project is pointed mainly towards students, but can be used by anyone.

The Aim of the project is to design and evaluate the mobile application, that helps students and the user with productivity, goal tracking and wellbeing tools built in the app. This will enhance the users ability with time management, focus , meeting their targeted goals and the overall wellbeing of the student/user. The app will feature behavioural design techniques.

The objectives

The first objective is to analyse current similar applications and identify what features they implemented. To find out what features are good and also identify the potential user limitations of the app. The second objective is to identify and research behavioural design principles that are relevant to the features and tools that I want to implement in the app such as productivity and wellbeing. The third objective is to start designing a prototype application featuring the tools required, and potentially making changes or implementing new features if necessary. The fourth objective is to test the application, and also to evaluate the users usability and their perceptions on the app. Then finally I will need to asses the effectiveness of the features implemented. The final objective is to asses and evaluate how my chosen behavioural techniques influence will influence the users engagement on the application. And whether they have manged to successfully influence the user in a positive manner.

These objectives will ensure that I stay on track and that the project will remain structured and measurable, and also it will ensure the project is research driven [1].

The research Philosophy

After researching and evaluating other projects, I have concluded that the best suitable research philosophy for the project is the pragmatic research philosophy.

Pragmatic research philosophy combines both quantitative and qualitative methods of research focused on the research requirements. My project requires both elements of design – creative process and evaluation of the measurability of the usability and effectiveness of the tools. And therefore because of this the pragmatic research philosophy will be an excellent choice because it allows for methodological flexibility. The other methods I investigated were positivism, which was mainly focused on the measurement of objectives and the other was interpretivism which is focused and centred on the experience. Unlike those two methods, my method of choice; pragmatism reflects that in order to create value, in most cases both perspectives need to be considered [2][3][4].

My project benefits from quantitative data by usability metrics and engagement. And also, from qualitative data from the user experience and the perceptions of the user.

Search tools and research Databases

The effectiveness of the research will require great ways of conducting research and collecting information. Its also important for the data to be from trusted sources, so it will ensure the sources are credible.

My key search tools were

UWTSD Library
Google Scholar
IEEE Xplore
SpringerLink
ACM Digital Library
ScienceDirect

This search tools, libraries and databases have a great choice of academic literature for computing and behavioural science, and there is also many peer reviewed options.

My search strategy was to focus mainly on the most essential and relatable keywords and the ones that I decided where the most suitable are

Productivity and Wellbeing apps
Behavioural design
Planning and positive habit forming
Digital & Social Distraction and academic performance
User usability evaluation and mobile applications

This were included in the criteria because they have peer reviewed studies, are of fairly recent publications and relevant to the concepts of productivity, behaviour and the user experience.[5]

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Q1 Strategies to enhance validity, reliability, generalisation and ethical considerations

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When conducting research is essential to ensure that findings are accurate , trustworthy and ethical. One of the most important factors is the validity and is used to check if the research ensures what it intends to do. In my project this, validity will be used to help design the survey questions that are connected with the objectives. This includes measuring user productivity and the satisfaction with the application. Its important to conduct a pilot test before the main publication, to ensure that the questions are clear enough, also to make sure the data collected is relevant to what actually is needed

Another important factor is reliability, which stands for the consistency of the research outcome and if those were repeated under similar scopes. To improve this the research will include structured questionnaires and consistent testing procedures for all participants.

Generalisability is often referred to the parts of the research outcomes that can be used beyond the sample. The use of students from different academic backgrounds will increase the diversity of the different perspectives and help improve the relevance of the research outcome. However they will be time and resource limitations so the sample size will be small, representing students rather than a wider audience [1].

Ethical considerations are really important for when conducting studies with participants. Therefore the participants needs to be informed of the purpose of the study and assured that their participation is completely voluntary. The responses need to remain confidential and anonymous, and users should be able to withdraw at any time [2].

Q2 Research strategies and pilot data collection

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My project will use a mixed methods research strategy. Using both quantitative and qualitative data techniques. This will benefit the research by using both numerical data and the participants experiences.

Quantitative data can be collected using structured surveys, in which the users will evaluate the prototype application. The questions can be focused on the usability of the application, and around the users satisfaction with the application. Also it can ask questions based on what could be improved or changed. The use of this methods can allow for trends to be identified in the participants [3].

Qualitative data will be collected by survey questions. This will rather focus on more detail into some features. For example participants will be asked to provide a more described response based on their experience with the app and what can be improved. This type of research will provide an in-depth view on the users' perceptions and their behaviour. For this numerical data may not be enough [4].

The pilot study is best to conducted before the main research, in order to accurately test the collection method. In the pilot test, there will be a small number of participants which will answer questions based on the clarity of the questions and the effectiveness of the prototype. The results of this test will help in updating the research tools and improving the quality of the data collection process.

Q3 Quantitative and qualitative analysis

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Finally, when the data is collected, then different analysis techniques based on the data type. The Quantitative analysis is mainly focused on statistical and numerical evaluation. For this project the data gained will be analysed by using descriptive statistics that include average and percentages. These methods will help identify the trends in user rateability of the features in the app and whether it improves their productivity and wellbeing.

On the other hand qualitative analysis is focused on understand written feedback or the interview responses of the participants. A popular technique is called thematic analysis, this identifies patterns in the participants responses. For example this may identify common concerns, or responses regarding the interface or within the app features.

Using both methods, will benefit by providing a more complete and complex understanding in how the users interacts with the application and if the solution proposed will actively solver and address the potential challenges related to productivity and wellbeing of the users [5].

Conclusion

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In conclusion, this proposal has outlined the initial planning and research approach for a computing-related project focused on improving student productivity. The mind map helped generate ideas and identify a suitable project topic, while the aim and objectives defined the direction of the research. Appropriate research strategies, including data collection and analysis methods, were also considered to ensure the project produces reliable and meaningful results. By combining creativity, innovation, and research methods, the project aims to develop a practical technological solution that supports students in managing their time and improving their focus.

Site link

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Google Sites link: <https://sites.google.com/view/task-3-ass/home?authuser=0>

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