

Project Proposal Assignment

by Kian Harper-Evans

Submission date: 14-Mar-2024 03:11PM (UTC+0000)

Submission ID: 226641490

File name: 41760_Kian_Harper-Evans_Project_Proposal_Assignment_554174_684452639.pdf (496.18K)

Word count: 2614

Character count: 13769

Title Page

Wednesday, February 28, 2024 12:11 PM

Assignment 1: Innovation and Research

Computer Networks and Cybersecurity
Changemakers: Creativity and Value Creation

Lecturer: James MG Williams
Student: Kian Harper-Evans (2204995)
Email: 2204995@student.uwtsd.ac.uk

Word Count: 2189 Words

Task 1

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Importance of innovations

5 Things you use/activities you take part in that wouldn't exist 10 years ago:

- Cross-platform gaming
- Streaming majority of watched media
- Streaming many games (not owning games played)
- Watching tik tok styled content
- Augmented reality/virtual reality

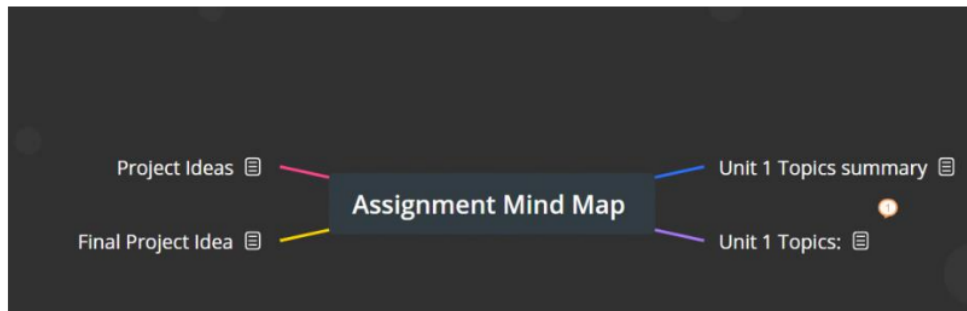
Summaries Unit 1 Topic 1 in 500 Words:

The first main topic the unit covers is innovation, what it is and why it is important. The main takeaway from this section is that innovation is one of the most important features that humans possess. A fact covered in the content that displays the importance of innovation is the content on page 13 discussing is innovation changing things for the better? In this section we are told that "Deaths from natural disasters actually fell to less than half over the last 100 years" source- [1]. This figure shows us that innovation in fields such technology has decreased the total number of deaths from natural disasters. This shows that innovation saves lives in many cases. This section also claims that the number of people who live in extreme poverty has decreased from 35.9% of people globally in 1990 to 9.3% in 2017. This shows that innovation in technology and other fields has improved the quality of life for people globally in areas where quality of life would typically be perceived as poor. The figures on extreme poverty may have changed in recent times since the covid pandemic and cost of living crisis. To summaries this section, it can be concluded that in general the continued innovations in fields such as technology and medicine for example has improved the overall quality of life for different demographics of people world-wide.

The second section of this content is called the onward march of technology. This section covers the 4 different stages of the industrial revolution. From the first stage starting in around 1784 with innovations in farming and mining technology all the way to the fourth stage which is yet to be full recognized. This section mainly covers what different innovations happened during the different stages/types of revolutions. These include technological innovations such as steam powered engines, automated production methods in fields like farming and factory work.

The third and final section of this content is called creativity and you. The content in this section is focused on the importance of creativity, creativities effects on innovation, people's thoughts on creativity, how creativity is lost and the benefits of creativity and how it effects peoples thinking. One section of this content states "only 25% of people are living up to their creative potential" source- Kelley and Kelley 2015. I believe this statistic shows that in current workplaces and industries a high percentage of people don't have an outlet to be creative. To summaries this section is mostly focused on how creativity is being possibly suppressed in the modern day in some fields.

Mind Map Overview:



Mind Map Content:

Unit 1 Topics summary

The first main topic the unit covers is innovation, what it is and why it is important. The main takeaway from this section is that innovation is one of the most important features that humans possess. A fact covered in the content that displays the importance of innovation is the content on page 13 discussing is innovation changing things for the better? In this section we are told that "Deaths from natural disasters actually fell to less than half over the last 100 years" source- [1]. This figure shows us that innovation in fields such technology has decreased the total number of deaths from natural disasters. This shows that innovation saves lives in many cases. This section also claims that the number of people who live in extreme poverty has decreased from 35.9% of people globally in 1990 to 9.3% in 2017. This shows that innovation in technology and other fields has improved the quality of life for people globally in areas where quality of life would typically be perceived as poor. The figures on extreme poverty may have changed in recent times since the covid pandemic and cost of living crisis. To summarise this section, it can be concluded that in general the continued innovations in fields such as technology and medicine for example improved the overall quality of life for different demographics of people world-wide. The second section of this content is called the onward march of technology. This section covers the 4 different stages of the industrial revolution. From the first stage starting in around 1784 with innovations in farming and mining technology all the way to the fourth stage which is yet to be full recognised. This section mainly covers what different innovations happened during the different stages/types of revolutions. These include technological innovations such as steam powered engines, automated production methods in fields like farming and factory work. The third and final section of this content is called creativity and you. The content in this section is focused on the importance of creativity, creativity's effects on innovation, people's thoughts on creativity, how creativity is lost and the benefits of creativity and how it effects peoples thinking. One section of this content states "only 25% of people are living up to their creative potential" source- Kelley and Kelley 2015. I believe this statistic shows that in current workplaces and industries a high percentage of people don't have an outlet to be creative. To summarise this section is mostly focused on how creativity is being possibly suppressed in the modern day in some fields.

Unit 1 Topics:

Topics: How innovations in tech and other fields improve overall quality of life globally.

Project Ideas

Project Ideas: 1. Building and Managing a Software Defined Network 2. testing Security In Software Defined Networks 3. IoT Security Testing 4. Testing Security of Mobile Devices 5. Securing Digital Applications in real time environments 6. Block chain security 7. The security of Data on social media (E.G Youtube) 8. Automated Network Testing 9. Optimize Network Based on Testing 10. Artificial intelligence solutions in real time intrusion detection 11. open source threat intelligence analysis and automation 12. Network Traffic analysis 13. Analysis on mobile malware 13. Mobile devices privacy assessment 14. Forensic analysis on social media data 15. Forensic analysis on wearable Devices

Final Project Idea

For my final project idea I have chosen to combine some of the similar project ideas into one overall project. the project ideas I have chosen are: 1. Testing Security of Social Media Sites (E.G YouTube) 2. Network Traffic Analysis 3. Analysis of Mobile Malware 4. Forensic Analysis of social media data The final Name for this project idea will be: Testing and Analyzing Social Media Data/Networks

The final project Idea That I have chosen is Testing/Analyzing Social Media Data/Networks

Task 2

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Project Aims and Objectives

Project Aim:

Investigate and test the quality of user security on a variety of different social media websites and compare them.

Project Objectives:

- Objective 1- Compile a list of different social media sites that will be researched, tested and analyzed.
- Objective 2- research the methods these sites use to protect users including, security technologies/data storage methods
- Objective 3- design/research the best methods to test the quality of a websites data security
- Objective 4- test the selected handful of social media websites that I have selected and record the results of each test
- Objective 5- compile the results and rank the selected sites/applications in order of highest quality of security to lowest
- Objective 6- provide a final evaluation of the state of online security in the modern day. Making points on how some things could be improved in certain areas for certain sites.

Research Philosophy

To help choose a specific research philosophy for this project i looked through the content that was contained in the unit 1 Topic 2 – How to solve a problem slides. These slides contain information on different research philosophys and what situations they are suitable for. The research philosophys mentioned in these slides are, Objective and subjective ontology, epistemology and Axiology. For my project i choose pragmatism which a sub section of epistemology. This philosophy is based around the idea that something can be true but also false given the circumstances. I believe this is suitable for my project as certain security tools and stratagies are good and bad depending on the situation.

Information on this research philosophy was taken from slides found in Unit 1 – Topic 2 How do u solve a problem. and from the source [1]“**Epistemology is the branch of philosophy concerned with knowledge. Epistemologists study the nature, origin, and scope of knowledge, epistemic justification, the rationality of belief, and various related issues.**”

References

- [1] Wikipedia, “Epistemology,” Wikipedia, 5 March 2024. [Online]. Available: <https://en.wikipedia.org/wiki/Epistemology>. [Accessed 5 March 2024].

Research Tools

Search Databases:

For this project I will be using a variety of different research databases and research strategies. Alongside the use of the regular Google search database I will be making use of Google Scholar search database and the UWTSD Library database. These databases have been chosen because Google Scholar is known for providing more reliable and relevant research sources such as articles, papers and journals. A additional added benefit of allowing a person to connect their university's search database to it, to help return more relevant results.

Research Strategies:

For this project I will also be using different research strategies. These strategies include previously used mind maps and the yet to be used concept maps. Mind maps have been used previously in this project to display ideas and information gathered about the topic in the report and they will be used in future as it displays relevant information in a easy to digest way. Concept maps will be used in this project to help break down the steps required to achieve goals in this project. So for example the map will start with a goal such as find out what security tools social media sites use and then the map will show the steps that are required to achieve that goal in a broken down easy to take in way.

Task 3

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Consider and document strategies to enhance validity, reliability, generalizability and ethical considerations.

For my project I will be using multiple different strategies to collect research. I will also be using different methods to ensure that my information is valid and reliable. Firstly, I will be making heavy use of secondary research. What is secondary research? Secondary research refers to collecting information or data that is not your own from a database such as a google search engine or the UWTSO Library. This is according to the source, [1] which states **"Secondary research, also known as desk research, is a research method that involves compiling existing data sourced from a variety of channels. This includes internal sources (e.g.in-house research) or, more commonly, external sources (such as government statistics, organizational bodies, and the internet)."** I will need to use secondary research throughout my project to gain information on things like company's security strategies, tools and statistics of security breaches different social media apps/websites may have experienced to build an idea of what sites are the most secure.

Another method that I may use in this project is a survey or questionnaire. I may use a questionnaire for this project to get an understanding of how much everyday people understand about the security of the apps and sites they use daily. However, with this method of research I will have to take into account my method of sampling. First, I will need consider a sample pool size. For this I believe sharing a questionnaire with around 10-15 people. I believe this would be a satisfactory sample size as it won't be too many results to work through, but it will contain enough participants to give me a general idea of what peoples thoughts are on this topic. for this project I will make use of typical case sampling. What is typical case sampling? Typical case sampling refers to a type of research sampling that is useful when investigating a trend compared to what is considered as typical. This is according to the source, [2] which states **"Typical case sampling is a type of purposive sampling that's useful when a researcher is looking to investigate a phenomenon or trend as it compares to what is considered typical or average for members of a population."** I believe this sampling method is best suited for my project as I will be looking into the average population's views and knowledge on the topic of online security.

References

[1] Qualtrics, "Secondary research: Definition, methods, & examples," Qualtrics, N/A N/A N/A. [Online]. Available: <https://www.qualtrics.com/uk/experience-management/research/secondary-research/>. [Accessed 6 March 2024].

[2] Alchemer LLC, "Purposive Sampling 101," Alchemer LLC, N/A N/A N/A. [Online]. Available: <https://www.alchemer.com/resources/blog/purposive-sampling-101/#:~:text=Typical%20case%20sampling%20is%20a,for%20members%20of%20a%20population..> [Accessed 12 March 2024].

Research Strategies

For my project i will be making use of multiple different research strategies throughout this project. Including-

Review of Literature:

For my project i will be required to research and analyze multiple different secondary research papers, articles and sources. These include official articles and documents released by the companies that run certain social media websites/apps that will outline how their security works, data/statistics on possible breaches in security and website traffic data. I will also need to look through secondary sources that are not associated with the companies that run these sites to achieve less biased results. I intend that all my sources are relevant to the subject, reliably sourced and up to date.

Case study analysis:

Case study analysis refers to the study of a single organization. I will be studying multiple organizations and comparing the quality of their user/data security during this project. I will be looking into companies that run apps/websites like YouTube, Instagram, Snapchat and Facebook.

Survey:

For my project, I will survey members of the public to understand what people know about the sites they use in terms of their data security and user security. I will be giving out my survey to around 15-20 members of the public to ensure that there is not too much data to work through. I aim to have the survey contain around 15 questions that will be mostly comprised of multiple-choice questions.

Testing/experiments:

If possible, during the project I would like to test each site/applications data security myself to gain first-hand knowledge on the quality of security on these sites.

Pilot Data Collection Method (Feedback on Project)

Questionnaire Link:

<https://forms.office.com/Pages/ResponsePage.aspx?id=-REPTm4EBUWcuNshUjEelUzhqYkQQa1Ds1ocxFSVzwhUMFFJUUE3RUMwMFAxMDUwNUNSUJRRV1AzWI4u>

Qualitative and Quantitative Analysis Methods

In This section I will be listing and describing different qualitative and quantitative analysis methods. I will list examples of each below and provide research into each of the analysis methods with citations.

Qualitative Methods

Thematic analysis:

Thematic analysis refers to a method of data analysis which involves reading through sets of data whilst trying to identify patterns and meanings in the data to attempt to derive a theme. This is seen in the source, [1] which states **“Thematic analysis is a qualitative data analysis method that involves reading through a data set (such as transcripts from in depth interviews or focus groups), and identifying patterns in meaning across the data to derive themes.”**. An advantage of Thematic analysis is that it is a flexible analysis approach that allows a researcher to develop new insights and concepts from blocks of data. This is shown in the source, [1] which states **“Thematic analysis is a flexible approach to qualitative analysis that enables researchers to generate new insights and concepts derived from data.”**.

Requirements Analysis:

Requirement analysis/requirement engineering is a process that is used to help determine the needs of a new releasing product. This is according to the source, [2] **“which states “Requirements analysis or requirements engineering is a process used to determine the needs and expectations of a new product.”**. An advantage of requirement analysis is that it addresses the concerns of stakeholders and customers when concerning a product. This can help with the definition of the requirements of a product. This is according to the source, [3] which states **“It helps identify sources of frustration on the part of all stakeholders, not just the customer, which can inform the definition product requirements**

to improve those pain points.”.

Card Sorting:

Card sorting refers to a sorting method used to evaluate information from architecture of a site. This is done by research participants organizing topics/data into categories that are easy to understand and manage for a project. This is according to the source, [4] which states **“Card sorting is a method used to help design or evaluate the information architecture of a site. In a card sorting session, participants organize topics into categories that make sense to them and they may also help you label these groups.”**. An advantage of card sorting is that it helps you understand a user or consumers understanding and expectations of your products or project. This is seen in the source, [4] which states **“Card sorting will help you understand your users' expectations and understanding of your topics.”**. There are two types of card sorting. Those being open and closed.

Quantitative Methods:

Graphs and Charts:

We all have used charts and graphs to display data collected in an easy to digest way before. Graphs and charts also have the added benefit of being more eye catching which could result in more people viewing whatever data you're displaying, which will lead to the spread of whatever message you are trying to convey.

Mathematical Analysis:

According to the source, [5] mathematical analysis is concerned with quantifying change, with an emphasis on a role played by fundamental notions of continuity and approximation. This is seen in **“Mathematical analysis is concerned with quantifying change, with a key role played by fundamental notions of continuity and approximation. This research area includes, for example: Fourier and harmonic analysis. operator theory.”**. Mathematical analysis has the advantages such as modeling, clear target and easy implementation of data. This is seen in the source, [6] **“This optimization method has the advantages of modeling, clear target, stable algorithm, and easy implementation; however, these depend on the experience of the planner and the expression of the optimization equation.”**.
Descriptive Analysis:

Descriptive analysis can be described as taking data and converting it into a form that is easier to understand by someone looking to consume said data. This is according to the source, [7] which states **“The conversion of raw data into a form that will make it easy to understand & interpret, ie., rearranging, ordering, and manipulating data to provide insightful information about the provided data.”**. Advantages to descriptive analysis include having a higher degree of neutrality, shown in the quote **“High degree of objectivity and neutrality of the researchers are one of the main advantages of Descriptive Analysis.”** And descriptive analysis is a better method for compiling information that describes relationships, shown in the quote **“This type of analysis is considered as a better method for collecting information that describes relationships as natural and exhibits the world as it exists.”**.

References



- [Delve, "How to Do Thematic Analysis," Delve, N/A N/A N/A. [Online]. Available:
1 <https://delvetool.com/blog/thematicanalysis#:~:text=What%20is%20thematic%20analysis%3F,the%20data%20to%20derive%20themes...> [Accessed 13 March 2024].
- [Simplilearn, "What is Requirement Analysis," Simplilearn, 17 November 2023. [Online].
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- [Jama Software, "A Guide to Requirements Analysis for Product Teams," Jama Software,
3 N/A N/A N/A. [Online]. Available: <https://www.jamasoftware.com/requirements-management-guide/requirements-gathering-and-management-processes/requirements-analysis#:~:text=It%20helps%20identify%20sources%20of,like%20the%20data%20flow%20diagram...> [Accessed 13 March 2024].
- [GobiernoUSA.gov, "Card Sorting," GobiernoUSA.gov, N/A N/A N/A. [Online]. Available:
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] March 2024].
- [UKRI, "Mathematical analysis," UKRI, N/A N/A N/A. [Online]. Available:
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- [Elsevier B.V, "Mathematical Analysis," Elsevier B.V, N/A N/A N/A. [Online]. Available:
6 <https://www.sciencedirect.com/topics/social-sciences/mathematical-analysis#:~:text=This%20optimization%20method%20has%20the,there%20will%20be%20no%20flexibility..> [Accessed 13 March 2024].
- [A. S. Rawat, "An Overview of Descriptive Analysis," Analytics Steps Infomedia LLP, 31
7 March 2021. [Online]. Available: [https://www.analyticssteps.com/blogs/overview-](https://www.analyticssteps.com/blogs/overview-descriptive-analysis)
] [descriptive-analysis](https://www.analyticssteps.com/blogs/overview-descriptive-analysis). [Accessed 13 March 2024].

Appendices

Thursday, February 29, 2024 5:15 PM

All reference list/citation from all tasks shown below:

References

[1] Wikipedia, "Epistemology," Wikipedia, 5 March 2024. [Online]. Available: <https://en.wikipedia.org/wiki/Epistemology>. [Accessed 5 March 2024].

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[1] Qualtrics, "Secondary research: Definition, methods, & examples," Qualtrics, N/A N/A N/A. [Online]. Available: <https://www.qualtrics.com/uk/experience-management/research/secondary-research/>. [Accessed 6 March 2024].

[2] Alchemer LLC, "Purposive Sampling 101," Alchemer LLC, N/A N/A N/A. [Online]. Available: <https://www.alchemer.com/resources/blog/purposive-sampling-101/#:~:text=Typical%20case%20sampling%20is%20a,for%20members%20of%20a%20population..> [Accessed 12 March 2024].

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[Delve, "How to Do Thematic Analysis," Delve, N/A N/A N/A. [Online]. Available: <https://delvetool.com/blog/thematicanalysis#:~:text=What%20is%20thematic%20analysis%3F,the%20data%20to%20derive%20themes..> [Accessed 13 March 2024].

[Simptilearn, "What is Requirement Analysis," Simptilearn, 17 November 2023. [Online]. Available: <https://www.simptilearn.com/what-is-requirement-analysis-article>. [Accessed 13 March 2024].

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[Elsevier B.V, "Mathematical Analysis," Elsevier B.V, N/A N/A N/A. [Online]. Available: <https://www.sciencedirect.com/topics/social-sciences/mathematical-analysis#:~:text=This%20optimization%20method%20has%20the,there%20will%20be%20no%20flexibility..> [Accessed 13 March 2024].

[A. S. Rawat, "An Overview of Descriptive Analysis," Analytics Steps Infomedia LLP, 31 March 2021. [Online]. Available: <https://www.analyticssteps.com/blogs/overview-descriptive-analysis>. [Accessed 13 March 2024].

Project Proposal Assignment

GRADEMARK REPORT

FINAL GRADE

GENERAL COMMENTS

67 /100

Total:	6 7
1. Engagement with Literature Skills	
T1 Mind Map: + 1 citation included. – could be extended and reference sources clearly documented. T2: + Some use of citations and references documented. – could be extended. T3: + Good use of citations and references included. + Reference list format. Good.	1 1
2. Knowledge and Understanding Skills	
T1: + Good Knowledge and understanding of Unit1 topic 1 concepts. T2: + A research philosophy is defined and documented for the project. Supported by citations. Positivism, phenomenology and a mixed approach could also be considered. T3: + Relevant research strategies for data collection are documented. + Different types of quantitative and qualitative analysis are outlined. - Project area could be mentioned in relation to the types of quantitative and qualitative analysis methods documented. + Supported by citations.	1 5
3. Cognitive and Intellectual Skills	
T1: + Evidence of relevant concept and project idea analysis is documented.	1 4

T2: + A single Aim and relevant Objectives have been documented. Good. T3: + Some research methods are documented and related to the project area. - Strategies to enhance validity, reliability, generalisability and ethical considerations are not clearly documented.		
4. Practical Application Skills		
T1: + Use of software to create the Mind-map. Content clearly documented. T2: + Appropriate research engines identified. - Research databases such as ACM and IEEE not identified. - Search strategies not used to identify relevant research related to the project area. T3: + Data collection method designed and used to acquire some feedback to improve the focus of the project. Good.	1 2	
5. Transferable Skills for Life and Professional Practice		
T1: + Good format and presentation. T2: + Task answer is structured and documented. T3: + Task answer is structured and documented. - Some grammar errors throughout. On-time/Late: OT.	1 5	

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