**Analysis Report**

**Technological Effect on Sleep and Learning Behaviour’s**

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**Requirements, Constraints and Scope**

Functional Requirements:

* Data that is complex and doesn’t makes sense is made easy to understand
* The digital solution is presented in an infographic form
* The digital solutions includes a mix of data types such as text, numbers and digital graphics
* Digital solution will include a range of digital charts
* Come to a conclusion and answer the research question

Non-Functional Requirements:

* Data that is being used should be recent (2014-2024)
* All data visualisations must be relevant to the research question and as accurate as possible
* The digital solution will laid out in a way that is coherent and makes sense
* The infographic will incorporate a range of colours and designs that make it look aesthetically pleasing
* All forms of data visualisation used will be meaningful and useful towards the research question
* All secondary data will be used will be from secure and reliable sources

Data Requirements:

* Average hours of sleep for people aged between 13-19
* Advantage/Disadvantage of technology in the school system
* Effects of blue light exposure on the human body and on sleep
* Effects of technological addiction on the human body and on sleep
* How well technology assisted learning works with students
* Whether technology influences medical issues such as ADHD which affect attention span/focus
* Whether excitement caused by games/movies affects sleep
* Sleep Deprivation and its effects on health
* Data on whether technology affects how much homework a student completes

Constraints:

Economic:

* Digital Solution must be completed by late August
* All data acquired must be free of charge
* A part of the timeframe must be used to collect the required data
* Find 20 students of varying age with questions regarding technological affects on sleep, and learning behaviours
* Narrow down the research being committed to the research question

Legal:

* Consent must be acquired for primary research using Microsoft Forms
* Data acquired from secondary sources must be referenced in the APA format

Social:

* The secondary sources must be from trustworthy, reliable and free online sources

Usability:

* The solution must be easy to understand for viewers

Technical:

* Data must be transformed into data visualisations using Microsoft Excel and Airtable
* The infographic has to be created using the school’s Apple MacBook provided to us
* Microsoft Forms must be used to collect primary data

Scope:

The digital solution will be created in the form of an infographic. It will showcase all the related data and opinions of the research question in a clear and concise way. This will be shown in short paragraphs of text, evidence using numbers, and digital graphics using both of these to make aesthetically pleasing data visualisations. The digital solution will have a conclusion which either support or refute the research question, by using the data provided as evidence. The data used in the digital solution will be recent, from the years 2014-2024. The digital solution will use various forms of graphs ranging between bar charts, to pie charts that clearly show the conclusion of the data, as well as short paragraphs explaining and extending more on it. The infographic will present the data in a neat format, using various colours that relate to the theme and make the design aesthetically pleasing.

The solution will be mainly based on teenagers, aged 13- 19 years of age. This is due to the research question aiming towards students, and students aged 13-19 experience lots of mental growth, that affects their learning behaviours. Secondary data that will be used in the digital solution will have to be referenced correctly using APA formatting to avoid any legal trouble. All primary data that will be used is required to have consent given by the people who gave the data. As an infographic to scale as large as this solution hasn’t been created before, more effort will be required to make it flow and for the digital solution to be coherent while making it easy for viewers to understand. The digital solution is required to be completed by the late August, with only 3 and a half months to work on the infographic. Due to this time constraint the digital solution will only be based on teenagers aged 13-19, instead of different age ranges as there isn’t time for all of them to be explored effectively.

**Critical & Creative Thinking**

Functional Requirements

Data that is complex and doesn’t makes sense is made easy to understand

* Will someone viewing be able to understand easily?
  + Create data visualisations and short paragraphs to make it easy to understand
  + Ask multiple people their opinions of the design and whether it’s easy to understand
  + If it isn’t easy to understand reformat the design until it is

The digital solution is presented in an infographic form

* How is the digital solution presented into an infographic form?
  + Make the digital solution with static data visualisations
  + Make the digital solution with coherent font, and colours that allow for easy viewing

The digital solutions includes a mix of data types such as text, numbers and digital graphics

* Does the digital solution contain multiple varieties of data visualisation
  + Make sure text, numbers and digital graphics are all included multiple times withing the digital solution

Digital solution will include a range of graphs

* Does the digital solution include many different types of graphs
  + Ensure there is varying types of graphs in the digital solution ranging from bar charts to pie charts

Come to a conclusion and answer the research question

* What data is needed to come to a conclusion with the research question
  + Articles with opinions/evidence on the research question
  + Data that ether supports or refutes the research
  + The personal opinions of many people about the research question
* What will be included when talking about the conclusion of the research question
  + List of evidence supporting/refuting the statement
  + Concluding statements with evidence to support
  + Articles and secondary sources that will be used to support/refute the research question

Non-Functional Requirements -

Data that is being used should be recent (2014-2024)

* Is the Data that is being used from the years 2014-2024
  + Write down the dates of the data source
  + Find recent data with findings that are within the time frame

All data visualisations must be relevant to the research question and as accurate and truthful as possible

* Is the data accurate and truthful
  + Does the data come from trusted websites such as government websites that would use accurate data
  + Compare many different data sets/ websites to determine whether it is accurate/factual
  + If a data source isn’t accurate/truthful don’t use it as data
* Is the date relevant to the research question/
  + Check the title of the secondary data and determine whether it aligns with the research question
  + If the secondary data isn’t relevant to the topic don’t use it as data

The digital solution will laid out in a way that is coherent and makes sense

* Does the solution keep a similar look throughout the whole infographic that makes sense?
  + Ensure the same font, and design is used throughout
  + Check with multiple people to see their opinion on the infographic and whether its coherent

The infographic will incorporate a range of colours and designs that make it look aesthetically pleasing

* Does the solution use relevant colours throughout the infographic?
  + Ensure the colours fit the theme of technology, sleep and learning behaviours
  + Check with multiple people to see if the colours suit the theme

All forms of data visualisation used will be meaningful and useful towards the research question

* Is the data meaningful
  + Ensure the data has a use in explaining the research question
  + If the data isn’t meaningful and useful towards the research question don’t use the data

All secondary data will be used will be from secure and reliable sources

* Is the data reliable?
  + Does the data come from trusted websites such as government websites
  + Does the data come from a website which has information that is similar to others
  + If a data source isn’t reliable don’t use it as data

Data Requirements:

Average hours of sleep for people aged between 13-19

* Where will get you get the from?
  + This data will be gotten from trusted secondary data sources such as websites with big data lists

Advantages/Disadvantages of technology in the school system

* How will I get this data?
  + Through a Microsoft Form Questionnaire that will be sent out to various people

Effects of blue light exposure on the human body and on sleep

* Where will I find this data?
  + Through articles and data sets talking about the effects of blue light exposure from technology

Effects of technological addiction

* Where will this data come from?
  + Multiple articles talking about their opinion about technological addiction

How well technology assisted learning works with students

* Where will I find this date
  + Through a questionnaire asking about technology assisted learning
  + Finding articles talking about the positives and negatives of technology assisted learning

Whether technology influences medical issues such as ADHD which affect attention span/focus

* Where will I get this information from?
  + Through medical articles talking about ADHD and other similar medical conditions, and how technology affects them

Whether excitement caused by games/movies affects sleep

* Where will I get all this data from
  + Through questionnaires comparing hours spent doing those activities and hours of sleep

Sleep Deprivation and its effects on health

* Where will I get data regarding this issue from
  + Medical websites talking about sleep deprivation and its effects

Data on whether technology affects how much homework a student completes

* Where will I find information regarding this issue?
  + I will find information regarding this on the internet through articles and data sets
  + A questionnaire will also be sent out and the data from it will be used