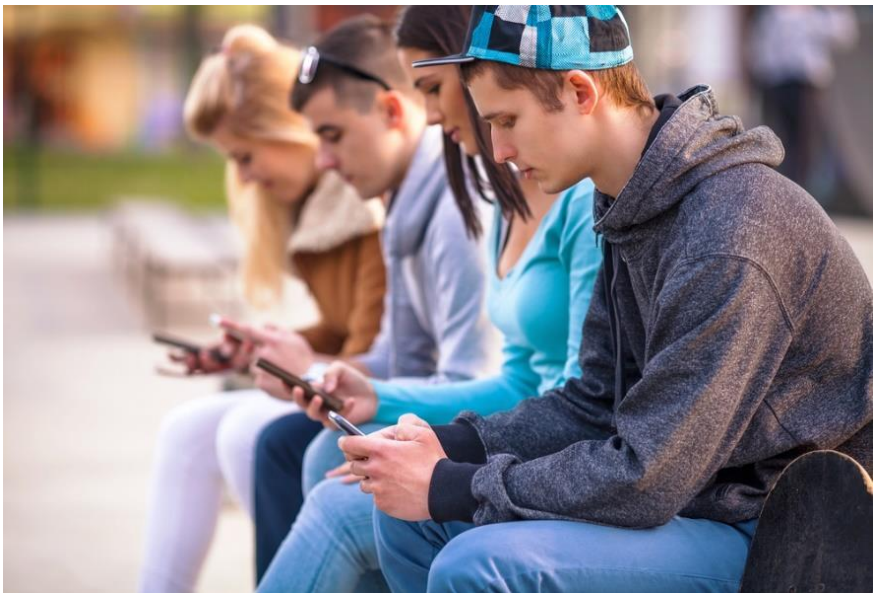
Project and Data Brief

How does digital screen time affect your well-being?

Recently, one clinical trial reported that a short-term reduction in digital screen time could improve children's and adolescents' behaviours and psychological symptoms.[1] How does the use of digital screen time affect our sense of well-being?



In this group project, your team will use data science skills and techniques learned in this unit to discover how digital screen time affects self-reported well-being among a large cohort of adolescents in a country.

Datasets

There are three datasets in this project, downloadable from Learnline.

dataset1.csv

This dataset contains basic demographic information of more than 120,000 adolescent respondents, each person identified by a unique ID number. Table 1 explains the meaning of variables in this dataset.

[1] Schmidt-Persson, J., Rasmussen, M.G.B., Sørensen, S.O., Mortensen, S.R., Olesen, L.G., Brage, S., Kristensen, P.L., Bilenberg, N. and Grøntved, A., 2024. Screen Media Use and Mental Health of Children and Adolescents: A Secondary Analysis of a Randomized Clinical Trial. *JAMA Network Open*, *7*(7), pp.e2419881-e2419881.

Table 1. Description of variables in dataset1.csv

Column No.	Variable Name	Description
1	ID	A unique number identifying a respondent
2	gender	Self-reported gender (1 for male and 0 otherwise)
3	minority	0 as belonging to the majority ethnic group of the country; 1 otherwise
4	deprived	1 as residing in localities with high deprivation indices i.e. an area with high scores on unemployment, crime, poor public services, and barriers to housing etc.; 0 otherwise

dataset2.csv

The second dataset captures the daily digital screen time of approximately 113,000 respondents. These respondents are a subset of dataset1.csv. Table 2 explains the meaning of variables in this dataset.

Table 2. Description of variables in dataset2.csv

Column No.	Variable Name	Description
1	ID	A unique number identifying a respondent
2	C_we	Number of hours using computers per day on weekends
3	C_wk	Number of hours using computers per day on weekdays
4	G_we	Number of hours playing video games per day on weekends
5	G_wk	Number of hours playing video games per day on weekdays
6	S_we	Number of hours using a smartphone per day on weekends
7	S_wk	Number of hours using a smartphone per day on weekdays
8	T_we	Number of hours watching TV per day on weekends
9	T_wk	Number of hours watching TV per day on weekdays

dataset3.csv

The final dataset describes various self-reported well-being indicators of 102,580 respondents. These respondents are a subset of dataset2.csv. Table 3 explains the meaning of variables in this dataset.

Table 3. Description of variables in dataset3.csv

Column No.	Variable Name	Description
1	ID	A unique number identifying a respondent
2	Optm	I have been feeling optimistic about the future
3	Usef	I have been feeling useful

4	Relx	I have been feeling relaxed
5	Intp	I have been feeling interested in other people
6	Engs	I have had the energy to spare
7	Dealpr	I have been dealing with problems well
8	Thkclr	I have been thinking clearly
9	Goodme	I have been feeling good about myself
10	Clsep	I have been feeling close to other people
11	Conf	I have been feeling confident
12	Mkmind	I have been able to make up my own mind about things
13	Loved	I have been feeling loved
14	Intthg	I have been interested in new things
15	Cheer	I have been feeling cheerful

Columns 2 – 15 of the dataset come from a well-being survey that asked each respondent's experience over the last two weeks prior to the survey. Respondents answered by assigning a discrete score between 1 and 5 to each well-being indicator:

1 – None of the time
2 – Rarely
3 – Some of the time
4 – Often
5 – All of the time

Project Objectives

Project objective 1

The first project objective must be addressed as part of the **Assessment 2** of this unit. To complete this objective, your team must prepare a high-quality presentation. Referring to the given datasets, the presentation will **propose**, **justify** and **execute**:

1. Two investigations requiring descriptive statistical analyses
2. Two investigations requiring inferential statistical analyses

You must only use the provided datasets. For more information about the required submissions, refer to the Assessment 2 page on Learnline.

Project objective 2

The second project objective must be addressed as part of the **Assessment 3** of this unit. To complete this objective, your team must prepare a high-quality group report. You will **predict** the well-being score of study participants based on their screen time using the provided datasets. It evaluates the overall data science skills that your team learned in this unit, including data exploration, data visualisation methods, and linear regression modelling.

You must only use the provided datasets. For more information about the required submissions, refer to the Assessment 3 page on Learnline.

Additional notes

Any creative derivation of new variables from these existing variables or data transformation is permitted. This is known as feature engineering and is a common data science practice. However, you must not alter the original values of these datasets. You must maintain ethical conduct in the course of your data analyses. If in doubt, please consult the Unit Coordinator.