Plan Overview

A Data Management Plan created using DMPonline

Title: Factors Influencing Usability and Perceived Satisfaction with a Continuous Monitoring and Deterioration Alerting System in a Non-ICU Setting: A Mixed-Methods Study

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Template: University of Manchester Generic Template

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Project abstract:

The proposed research aims to investigate the factors that influence the usability and perceived satisfaction of a continuous monitoring and deterioration alerting system in a non-ICU setting. The study will employ a mixed-methods approach, using the Unified Theory of Acceptance and Use of Technology (UTAUT) as the theoretical framework. The research question is "What factors influence the usability and perceived satisfaction of a continuous monitor with a deterioration alerting system in non-ICUs from the clinician's perspective?" Data will be collected through a combination of surveys and in-depth interviews with physicians working in non-ICU settings, who have experience with the use of a continuous monitoring and deterioration alerting system. The data collected will be analyzed using both quantitative and qualitative methods, including descriptive statistics, chi-square test, Pearson's correlation coefficient and Thematic Analysis. This research seeks to fill a gap in the literature by providing insight into the factors that influence the usability and perceived satisfaction of a continuous monitoring and deterioration alerting system from the perspective of clinicians. Additionally, this study also aims to contribute to the understanding of how theoretical models such as UTAUT can be applied to the healthcare setting. This research will provide valuable information for healthcare providers and system developers to improve the design, implementation and usage of such systems, resulting in improved patient outcomes.

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Copyright information:

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Factors Influencing Usability and Perceived Satisfaction with a Continuous Monitoring and Deterioration Alerting System in a Non-ICU Setting: A Mixed-Methods Study

Manchester Data Management Outline

1. Will this project be reviewed by any of the following bodies (please select all that apply)?

- Ethics

2. Is The University of Manchester collaborating with other institutions on this project?

- No - only institution involved

3. What data will you use in this project (please select all that apply)?

- Acquire new data

4. Where will the data be stored and backed-up during the project lifetime?

- University of Manchester Research Data Storage Service (Isilon)

5. If you will be using Research Data Storage, how much storage will you require?

- < 1 TB

6. Are you going to be receiving data from, or sharing data with an external third party?

- No

7. How long do you intend to keep your data for after the end of your project (in years)?

- 5 - 10 years
- 5 - 10 years

Guidance for questions 8 to 13

Highly restricted information defined in the Information security classification, ownership and secure information handling SOP is information that requires enhanced security as unauthorised disclosure could cause significant harm to individuals or to the University and its ambitions in respect of its purpose, vision and values. This could be: information that is subject to export controls; valuable intellectual property; security sensitive material or research in

key industrial fields at particular risk of being targeted by foreign states. See more examples of highly restricted information.

Personal information, also known as personal data, relates to identifiable living individuals. Personal data is classed as special category personal data if it includes any of the following types of information about an identifiable living individual: racial or ethnic origin; political opinions; religious or similar philosophical beliefs; trade union membership; genetic data; biometric data; health data; sexual life; sexual orientation.

Please note that in line with data protection law (the UK General Data Protection Regulation and Data Protection Act 2018), personal information should only be stored in an identifiable form for as long as is necessary for the project; it should be pseudonymised (partially de-identified) and/or anonymised (completely de—identified) as soon as practically possible. You must obtain the appropriate ethical approval in order to use identifiable personal data.

8. What type of information will you be processing (please select all that apply)?

- Anonymised personal data
- Audio and/or video recordings

9. How do you plan to store, protect and ensure confidentiality of any highly restricted data or personal data (please select all that apply)?

- Anonymise data
- Where needed, follow University of Manchester guidelines for disposing of personal data
- Access data hosted by the University of Manchester via its secure Virtual Private Network (VPN)
- Store data on University of Manchester approved and securely backed up servers or computers

10. If you are storing personal information (including contact details) will you need to keep it beyond the end of the project?

- No

The verbal consent will be recorded and stored separately from the interview recordings, in accordance with University of Manchester guidelines. Any personal information collected through surveys will be deleted at the end of the data collection phase. Additionally, if audio recordings need to be transcribed, a third-party University of Manchester accredited transcription service may be used.

11. Will the participants' information (personal and/or sensitive) be shared with or accessed by anyone outside of the University of Manchester?

- No

12. If you will be sharing personal information outside of the University of Manchester will the individual or organisation you are sharing with be outside the EEA?

- No

13. Are you planning to use the personal information for future purposes such as research?

- No

14. Will this project use innovative technologies to collect or process data?

- No

15. Who will act as the data custodian for this study, and so be responsible for the information involved?

Professor Dawn Dowding (primary supervisor)

16. Please provide the date on which this plan was last reviewed (dd/mm/yyyy).

2023-02-10

Project details

What is the purpose of your research project?

The proposed research aims to investigate the factors that influence the usability and perceived satisfaction of a continuous monitoring and deterioration alerting system in a non-ICU setting. The study will employ a mixed-methods approach, using the Unified Theory of Acceptance and Use of Technology (UTAUT) as the theoretical framework.

What policies and guidelines on data management, data sharing, and data security are relevant to your research project?

- The University of Manchester Research Data Management Policy http://documents.manchester.ac.uk/DocuInfo.aspx?DocID=33802%20
- The University of Manchester Records Management Policy http://documents.manchester.ac.uk/display.aspx?DocID=14916
- The University of Manchester Publications Policy http://documents.manchester.ac.uk/display.aspx?DocID=28526
- The University of Manchester IT policies and guidelines http://www.itservices.manchester.ac.uk/aboutus/policy/
- The University of Manchester Intellectual Property Policy http://documents.manchester.ac.uk/display.aspx?DocID=24420
- The University of Manchester Data Protection Policy http://documents.manchester.ac.uk/display.aspx?DocID=14914.

Responsibilities and Resources

Who will be responsible for data management?

- Jo-Fan Pan (student) will be primarily responsible for collecting, organizing and analyzing the data.
- Dr. Dawn Dowding (Supervisor) will provide guidance and support to the student in managing the data and ensuring that data collection and analysis methods are appropriate and ethical.

What resources will you require to deliver your plan?

The resources required to deliver the plan include:

- Qualtrics for survey administration
- Data storage for safekeeping of the collected data
- Transcription services for converting audio data into text
- Access to research data storage for archiving the data
- Equipped laptop for data analysis and management
- Qualitative analysis software such as Nvivo for analyzing and interpreting the data

Additionally, we will provide incentives of £15 to 15-20 participants who are willing to participate in the in-depth interview, which will cost us £225-£300.

Data Collection

What data will you collect or create?

Data that will be collected or created for this study include:

1. The in-depth interviews will be conducted via Microsoft Teams and only audio recordings will be made. The audio files will be securely stored on an RDS drive. Transcription will be done by a third party who is a UoM approved supplier. Access to the audio recordings will be restricted to authorized personnel only who have signed a confidentiality agreement and have undergone appropriate training. After the interview has been transcribed, the audio recordings will be promptly deleted from all devices and servers. The transcripts will be retained for the duration of the retention period specified in the informed consent form, after which they will also be securely deleted.
2. Online questionnaire data collected through the university approved platform Qualtrics, will be exported to .csv or .xls file format. The survey data will be stored on the project RDS drive.

How will the data be collected or created?

The data for this research project will be collected through two main methods: online quantitative surveys using Qualtrics, and 1-to-1 face-to-face interviews using Teams.

The online survey will be the first step in the research process, and participants will be asked to complete it. After completing the survey, participants will have the option to participate in a 1-to-1 interview if they are willing to do so. This will be indicated by ticking a box at the end of the survey and providing their email address. The research team will send Participant Information Sheets, a Consent Form, and an introductory message for the 1-to-1 interview to the participant.

The 1-to-1 interviews will be directed by the research team and controlled by peer review. The interview process will follow standardized methods and protocols, including a pre-determined interview schedule, and will be accompanied by annotations and documentation on the data, such as how and when it was recorded and any changes made to the original data. Recordings of participants will be processed in accordance with data protection law and will be transcribed using a contract provider with whom a data confidentiality agreement is in place.

Data collected from both the online surveys and the 1-to-1 interviews will be processed in accordance with data protection laws and will be stored in a clear and consistent file structure, with naming conventions and version control, in accordance with the UK Data Services Data Guidelines. For more information on data collection and organization, see the IT Services page on Qualtrics and Teams, and the UK Data Service guidance on organizing data. Only the research team can access the data on the secure Research Data Storage service.

Documentation and Metadata

What documentation and metadata will accompany the data?

N/A

Ethics and Legal Compliance

How will you manage any ethical issues?

To manage ethical concerns, I will take the following measures:

Participants in the online survey will provide informed consent by agreeing to a consent form and participant information sheet (PIS) on Qualtrics before they begin the survey. The PIS will clearly state that participation is voluntary and that participants can stop the survey at any time if they feel uncomfortable. For participants who agree to participate in the qualitative interviews, separate

consent forms and PIS will be sent to them. Approval for participation in the interviews will only be considered if participants agree by clicking the 'Agree' button on Qualtrics. During the interviews, participants will be asked to provide verbal consent, which will be recorded and stored separately from the interview data. A consent script will be used to guide the consent process, and the script will be stored securely with the research data.

Anonymisation of data: To protect the participants' privacy and confidentiality, I will assign study IDs and store the pseudonymisation key separately and securely from the participant data after I complete the data collection. The UK Data Service Anonymisation resource and the UK Anonymisation Network Framework will be followed for guidance on anonymisation.

Secure data storage and transfer: All sensitive data will be stored securely using a password-protected device and transferred from Onedrive Business to the RDS (Research Data Storage of the University of Manchester) immediately after the completion of the interview or survey.

If participants have any complaints, they can contact my supervisory team or the Research Ethics Manager of the University.

How will you manage copyright and Intellectual Property Rights (IPR) issues?

I acknowledge that the copyright and Intellectual Property Rights (IPR) of the data collected through my research will be owned by the University of Manchester, as per its policy on ownership of research outputs as outlined in the University of Manchester Intellectual Property Policy (http://documents.manchester.ac.uk/display.aspx?DocID=24420). The data collected will be licensed for reuse under a Creative Commons Attribution 4.0 International License, which will allow others to freely use and re-distribute the data with proper attribution to the University of Manchester and the participants.

In case of any third-party data used in my research, I will ensure that I have obtained the necessary permissions and followed any restrictions on data sharing specified by the owner of the data. If any such restrictions exist, I will make sure to clearly mention it in my research report

Storage and backup

How will the data be stored and backed up?

The data collected from the survey and interviews will be stored in the University of Manchester's Research Data Storage, which is a secure, managed storage solution provided by IT Services that is automatically backed up at least once a week. The data will be transferred to the Research Data Storage as soon as possible after collection. To ensure compliance with the funders' retention requirements of 5 years, the data will be securely stored for the duration of the research project.

How will you manage access and security?

The recordings of the interviews will be transferred to the University's Research Data Storage service and stored securely. Once they have been transcribed, the recordings will be immediately deleted from the University-approved recording device or platform, Microsoft Teams. The transcribed data will be anonymized and kept for a maximum of four years following the completion of my PhD studies. Only named researchers will have access to the data, which will be securely stored on the University's Research Data Storage service.

Selection and Preservation

Which data should be retained, shared, and/or preserved?

In this research, the anonymized study data, transcripts of audio/video recordings, and verbal consent will be retained for 5 years. This data will be stored and accessed via the Secure Research Data Service. On the other hand, any raw data containing confidential or personal information will be disposed of in accordance with the Information Governance Office guidance on the disposal of confidential material. Data retention and disposal will comply with the Records Retention Schedule of The University of Manchester.

What is the long-term preservation plan for the dataset?

During the 5 year period, data will be stored in a secure server/data management service, offered by the University of Manchester. The primary supervisor manages this storage, so the data will not be deleted once the student finishes their PhD.

Data Sharing

How will you share the data?

The anonymized dataset (in the form of an Excel sheet and transcripts) will be made available for future research. Any applications to use the data will be submitted to my supervisor for approval before the data is released. The data will be accessed via the Secure Research Data Service to ensure confidentiality and data security.

Are any restrictions on data sharing required?

Data will not be shared beyond the research group (and possibly Manchester University approved transcription services- using their secure site).