Streamlining Qualitative Research Methods for Medical Informatics – A Methodological Approach

Christa Weßel1, Frédéric Weymann1, Cord Spreckelsen1

Understanding and New Insights

WHY?

Evaluation

Exploration

Innovation

Requirements Analysis

Hidden Requirements

Formative

> Alternatives

Summative

> SWOT*

Efficient, Solid Framework

HOW?

Interview-Course & -Analysis

Practical Approach

Process-Schema

Template

Guideline

Schedule

Training- & Supervision

Quality Assurance

Explication & Reflection

by the Computer Scientist

Methods

Process-Schema

Interview-Course & -Analysis

Identification of Interviewees

• Analysis

• Selection

Scheduling

• Purpose

• Appointment

• Time

• Place

Preparation

• Expiration of the Mental Model

• Guideline

Materials

Interview

• Introduction

• Performance

• Parting

Field-Notes

• Course of the Interview

• Additional Information

• Impression

• New Ideas and Insights

Documentation

• Transcription of the record: by a typist

• Transcription of the field notes: by the researcher

Analysis

• Computer supported

• Iterative

Template

Interview-Guideline

Identification of Interviewees

• Analysis

• Selection

Scheduling

• Purpose

• Appointment

• Time

• Place

Preparation

• Expiration of the Mental Model

• Guideline

Materials

Interview

• Introduction

• Performance

• Parting

Field-Notes

• Course of the Interview

• Additional Information

• Impression

• New Ideas and Insights

Documentation

• Transcription of the record: by a typist

• Transcription of the field notes: by the researcher

Analysis

• Computer supported

• Iterative

Identification of Interviewees

• Analysis

• Selection

Scheduling

• Purpose

• Appointment

• Time

• Place

Preparation

• Expiration of the Mental Model

• Guideline

Materials

Interview

• Introduction

• Performance

• Parting

Field-Notes

• Course of the Interview

• Additional Information

• Impression

• New Ideas and Insights

Documentation

• Transcription of the record: by a typist

• Transcription of the field notes: by the researcher

Analysis

• Computer supported

• Iterative

Interview-Course & -Analysis

Practical Approach

Process-Schema

Template

Guideline

Schedule

Training- & Supervision

Quality Assurance

Explication & Reflection

by the Computer Scientist

Results (Oct 2004 – Aug 2006)

So far seventeen graduates and postgraduates in medical informatics used semi-structured interviews. The studies covered areas like knowledge management in medical research, hospital management, web-based information platforms and web-based learning. The training lasted about six hours per trainee.

Using QRM was considered a structured and comprehensible approach: “By doing semi-structured interviews it is easy for me to get a whole picture with many details in a short time.” - “The materials facilitate the profound discussion with colleagues and supervisors.” - “The first step of the requirements analysis - to know the user, his situation his needs and his ideas - is now more structured.” - “The perspective of the computer scientist changes from IT-centred to user-centred.”

Conclusion

QRM in medical informatics gained more and more attention during the last decades [1,2]. Social sciences offer the methods and the tools to perform qualitative research. The results of such qualitative studies can be applied to exploration, requirements analysis, both formative and summative evaluation and usability engineering. Computer scientists ask for appropriate training and clear and comprehensible guidance in using these methods [3]. The development of the framework for semi-structured interviews in medical informatics supported an effective and efficient adoption of QRM. To assure a high quality of scientific work the researcher has to select an appropriate QRM and to use at least two different methods (“triangulation”) [4]. He can apply either several qualitative or a combination of qualitative and quantitative research methods. One of the colleagues or one of the supervisors (“neutral experts”) should be adept in QRM and the scope of the methodology in order to be able to give useful feedback during the whole research. We are extending the use of QRM in medical informatics to other interview techniques such as panel groups, focus-group interviews and natural groups and observations.

References


* SWOT : Strengths, Weaknesses, Opportunities, Threats

1 Department for Medical Informatics, RWTH Aachen University, Pauwelsstr. 30, 52074 Aachen, Germany – http://www.isg-med.de

Email: cweessel|fweymann|cpsprechelsen@mi.rwth-aachen.de