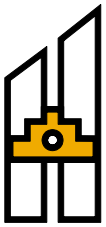
# Brukeropplevelsen av nettkurset www.kunnskapsbasertpraksis.no – En deskriptiv kvalitativ studie.



HØGSKOLEN I BERGEN

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**Mastergrad i kunnskapsbasert praksis i helsefag**

**Senter for kunnskapsbasert praksis**

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HØGSKOLEN I BERGEN

Mastergradsstudium i kunnskapsbasert praksis i helsefag

# Mastergradsoppgave

Brukeropplevelsen av nettkurset www.kunnskapsbasertpraksis.no
- En deskriptiv kvalitativ studie.

The user experience of the online course
www.kunnskapsbasertpraksis.no
- A qualitative descriptive study.

Lena Antonsen Stabell

Veiledere: Sarah Rosenbaum og Grete Oline Hole

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## Preface

My entry to the Masters Programme of Evidence Based Practice at Bergen University College literally happened by a mistype on the computer. I was browsing the curriculum and outline of the programme, and found it interesting that one could apply online. I started filling in my personal details just to see how this worked, but was interrupted by a Skype call. By mistake I hit confirm when I was trying to answer the phone. Three years after that mistake I have gained a lot of knowledge, experiences and challenges.

This Master's Thesis is one of them. I caught an early interest in doing a qualitative study on the online course www.kunnskapsbasertpraksis.no. I am interested in educational questions. I believe online teaching will increase in the years to come and spread to other areas like patient-information and treatment. I therefore considered the experiences I would gain from doing my Master's Thesis on this topic to be beneficial outside this specific setting.

**Acknowledgements:**

There are many contributors that have made the process a great experience. I would like to thank the following:

Centre for Evidence Based Practice at Bergen University College and the Norwegian Knowledge Centre for the Health Services for the invite to do research related to the online course, and for practical and financial support to carry out this study. I especially thank Gunhild, Bente and Ragnhild at the library: For always being approachable and helpful.

The participants of this study: For sharing your thoughts and ideas. Your contributions are the substance of this study.

My two supervisors Sarah and Grete Oline: For your guidance, encouragement, and for 'killing my darlings'. It has been great working with you.

To Lillebeth: For being my 'emergency help kit' and role model in the new and sometimes confusing territory of academia, and for proofreading the draft before submission.

Cecilie, Marianne and Merethe in my fabulous study group: The past three years would have been a lot harder and miserable without your company, support and laughs. I don't think I would have made it without you. You're the best!

A special thanks to Cecilie for collaborating with me on this study, - Your calming voice is just perfect!

To friends, family and colleagues: For showing interest and cheering throughout the project. Mum: You're welcome to visit now.

And last, but not least: Stig Eivind for supporting me in all possible and impossible ways. You've had your hands full for three years and you're still being patient! Everyone else may question this, but to me it is evident: You are truly Superman.

Bergen, May 2012.

Lena Antonsen Stabell

## Sammendrag

*Bakgrunn*: Nettkurset www.kunnskapsbasertpraksis.no skal gi en innføring i kunnskapsbasert praksis. Nettkurset har til hensikt å lære brukerne å finne, kritisk vurdere, og bruke forskningsbasert kunnskap for å kunne ta kunnskapsbaserte beslutninger. Nettkurset har ikke tidligere blitt evaluert.

*Hensikt og problemstilling*: Denne kvalitative deskriptive studien har til hensikt å beskrive brukeropplevelsen av nettkurset blant helsepersonell i Norge, og om de vurderer nettkurset til å kunne fremme bruk av forskning i praksisnære situasjoner. Hovedproblemstillingen er: Hva karakteriserer helsepersonell i Norge sin opplevelse av nettkurset www.kunnskapsbasertparksis.no når de utforsker det i en brukertest?

*Metode*: Datainnsamling bestod av ni brukertester på 90 minutter hvor helsepersonell løste ulike oppgaver knyttet til nettkurset. Testene ble ledet av en moderator som oppfordret deltakerne til å verbalisere sine tanker og reaksjoner underveis. Parallelt fulgte to observatører brukertesten fra et annet rom via video-overføring med Morae programvare. De kvalitative dataene fra brukertesten ble analysert i en template analyse med utgangspunkt i Morvilles bikubemodell for brukeropplevelser.

*Funn*: Nettkurset er for omfattende som en introduksjon til kunnskapsbasert praksis. Informantene likte nettkurset, fant det relativt lett å bruke, men betvilte nytten av det på arbeidsplassen. Informantene mente nettkurset hovedsakelig fremmet indirekte bruk av forskningsresultater i praksis. De oppfattet også nettstedet mer som en informasjonsside enn et nettkurs.

*Konklusjon*: Per i dag oppfyller nettkurset kun delvis sin hensikt. Denne studien peker på viktige faktorer ved utarbeiding av verktøy som skal stimulere og hjelpe klinikere til å arbeide kunnskapsbasert. Involvering av brukere fra idéutvikling til evaluering av ferdig produkt kan føre til bedre brukervennlighet, og større samsvar mellom verktøyets hensikt og behovene helsepersonell i praksis har.



*Nøkkelord*: Kunnskapsbasert praksis, Nettkurs, Kvalitativ deskripsjon, Brukeropplevelse.

## Abstract

*Background*: An online course in evidence based practice, www.kunnskapsbasertpraksis.no, aims at teaching the users to find, critically appraise and use research to make evidence based clinical decisions. No previous research has been conducted on this online course.

*Purpose*: The purpose of this qualitative descriptive study was to describe the user experience of the online course, and whether health professionals perceive it as a tool to enhance their research utilization in clinical practice. The main research question was: How do health professionals in Norway experience the online course www.kunnskapsbasertpraksis.no when exploring it in a laboratory setting?

*Methods*: Nine Norwegian health professionals were recruited to conduct a user test of 90 minutes. The tests consisted of specific tasks for the participants to solve. While doing so they were asked by a moderator to express their thoughts and reactions. Two researchers observed the test in real time by using Morae software. The qualitative findings were analyzed in a template analysis consisting of categories based on Morville's Honeycomb framework.

*Findings*: The participants appreciated the online course, found it quite easy to use and fairly useful, however not in their clinical practice. The participants found the online course to mainly promote indirect use of research in clinical practice. It was considered too overwhelming as an introduction to evidence based practice. They also questioned the nature of the online course and would rather describe it as an information web site.

*Conclusion*: At present the online course does not advance parts of its mission. This study suggests key issues important to consider when developing tools aimed to enhance evidence based practice. Users should be included throughout the developing process to evaluating the tool in real use. This would increase the likelihood that the tool will both be usable and useful.

*Key words*: Evidence Based Practice, Online course, Qualitative description, User Experience.

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## 1.0 Introduction

The evidence-based practice (EBP) movement has over the last decades spread from medicine to other health care education and practices including nursing (Polit & Beck, 2008:30). Based on Sackett (2000) and Haynes' (2002) works EBP can be defined as:

> ...the integration of best research evidence with clinical expertise and patient values to facilitate clinical decision making… Evidence-based clinical decision making should incorporate considerations of the patient's clinical state, the clinical setting and the clinical circumstances (DiCenso, Guyatt & Ciliska, 2005:4).

Despite increased focus on EBP in education (Straus et al., 2005), research has revealed barriers to why EBP is not yet a clinical reality (McCaughan et al., 2002 ; McKenna, Ashton & Keeney, 2004 ; Grol & Wensing, 2004 ; Haynes & Haines, 1998 ; Rapp et al., 2010). One of the barriers is the lack of knowledge of how to retrieve and critically appraise research (McCaughan et al., 2002 ; Forsetlund & Bjorndal, 2002).

In 2008 a Norwegian online course on EBP was launched: www.kunnskapsbasertpraksis.no. The course aims to teach the users how to find, critically appraise and use research to make evidence based clinical decisions (Senter for kunnskapsbasert praksis & Nasjonalt kunnskapssenter for helsetjenesten, 2011a). No previous research has been conducted related to this online course.

The purpose of this study is to explore health professionals' user experience of the online course www.kunnskapsbasertpraksis.no. The findings will provide important information for the developers of the course, and might dictate changes and improvements. This work will also point out factors worth considering when developing other EBP tools. These factors may be of interests to a broader audience.

### 1.1 Outline of the thesis

This work's aims and objectives are presented in chapter 1.3. Chapter 2 describes in more detail concepts, theories and previous research that have influenced this work, in addition to my presuppositions. In chapter 3 the research design is described. I then present the preparations needed prior to data collection in chapter 4. The data collection itself is presented in chapter 5, followed by the analysis process in chapter 6. Chapter 7 focuses on critique of the research process. In chapter 8 I present the findings by quotes

from all participants. In chapter 9 I discuss these findings in light of existing theoretical frameworks on user experience and usability, as well as clarifying the need for further research. Finally, in chapter 10, I summarise the findings related to the research questions.

## 1.2 Specifications and remarks to the text

This Master's Thesis builds on research on health professionals; however the majority is related to nurses. Being a nurse myself I am naturally more aquatinted with this field. As EBP is applicable for all health professions, I still find these findings relevant and often transferable to other groups of health professionals. The work is also based on knowledge generated from design and human-computer interaction. The topics discussed are complex and would benefit from being looked at from additional theoretical perspectives, e.g. learning theory. Due to the scope of this work such perspectives will only be briefly touched upon.

In the next sub-sections definitions of frequently used terms and acronyms are presented.

### 1.2.1 Definitions

**Research Utilization**: The term Research Utilization (RU) will be used in this Thesis. By this I mean "the use of findings from a disciplined study or set of studies in a practical application that is unrelated to the original research. In RU, the emphasis is on translating empirically derived knowledge into real-world applications" (Polit & Beck, 2008:29).

**User experience of web sites:** According to Hassenzahl & Tractinsky (2006:95) user experience is:

> A consequence of a user's internal state (predispositions, expectations, needs, motivation, moods ect.), the characteristics of the designed system (e.g. complexity, purpose, usability, functionality, ect.) and the context (or the environment) within which the interaction occurs (e.g. organizational/social setting, meaningfulness of the activity, voluntariness of use, ect.)

**Usability**: Usability is: "when a product or service is truly usable, the user can do what he or she wants to do the way he or she expects to be able to do it, without hindrance, hesitations, or questions" (Rubin & Chisnell, 2008:4). Usability is often specified in terms like efficiency, effectiveness; learnability and satisfaction (Ibid). Usability centres on the design of a product or service, and has a smaller focus than user experience.

**Usability testing**: This term refers to "a process that employs people as testing participants who are representative of the target audience to evaluate the degree to which a product meets specific usability criteria"(Rubin & Chisnell, 2008:21). In this assignment the term user test will be used to describe the method of data collection. The user tests were influenced by ideas from usability testing.

**E-learning**:" e-Learning can be defined as learning facilitated and supported through the use of information and communications technology" (JISC, 2011). The online course www.kunnskapsbasertpraksis.no is therefore an example of e-learning.

### 1.2.2 Acronyms

EBP: Evidence Based Practice

RU: Research Utilization

HIB: Høgskolen i Bergen (Bergen University College)

NOKC: The Norwegian Knowledge Centre for the Health Services

NSD: Norsk Samfunnsvitenskapelig Datatjeneste (Norwegian Social Science Services)

JISC: Joint Information Systems Committee

QD: Qualitative Description

VAS: Visual Analogue Scale

## 1.3 Aim and Objectives

The initiative to do a qualitative study on the usability of www.kunnskapsbasertpraksis.no was taken by its owners and developers. Master's students in EBP at Bergen University College were invited to initiate studies related to the online course. There were no boundaries or preset expectations on how to conduct this study. However, a report of their initial thoughts and aims had been made (Hafslund & Larun, 2009). It was of particular interest to gain information on the "user friendliness" (ibid): How easy is the online course to find? Do the users understand that EBP is a step-by-step process? These are questions that can be categorised as having to do with the usability of the online course.

An American information architect engaged in user experiences of web sites, clearly states the importance of looking at other facets of the user experience than usability alone: "Ease of use remains vital, and yet the interface-centred methods and perspectives of human-computer interaction do not address all dimensions of web design. In short, usability is necessary but not sufficient" (Morville, 2004).

A broader focus on user experience compared to usability alone would provide more interesting and varied information. Questions like "Do the users think of the course as beneficial in their work?" or "Would they recommend the online course to a college?" would not be covered if the focus was on usability alone. The user experience is therefore the focal point and the main research question.

Main research question: *"How do health professionals in Norway experience the online course www.kunnskapsbasertpraksis.no when exploring it in a laboratory setting? "*

The online course is meant to give an introduction to EBP (Senter for kunnskapsbasert praksis & Nasjonalt kunnskapssenter for helsetjenesten, 2011a). Therefore one can assume that beginners to EBP are the primary target group. For this reason I was interested in how previous knowledge of EBP might affect the user experience. In order to better understand how beginners react to the online course, I needed to also observe a group of non-beginners. In addition to describing the user experience this study aims to examine health professionals' perception of whether the knowledge presented in the online course is found helpful for enhancing RU. Two secondary research questions were therefore defined to capture these aspects of the overall research question.

Secondary research questions:

a) *How does the user experience of www.kunnskapsbasertpraksis.no differ between those with prior knowledge of EBP and those who use the online course as an introduction to EBP?*
b) *Do the users perceive the online course as a tool that could enhance their research utilization in clinical practice?*

# 1.0 Background

This chapter describes concepts, theories and previous research that have influenced this work, as well as the researcher's presuppositions.

## 2.1 Evidence Based Practice

The EBP movement reached Norwegian nurses, physiotherapist and occupational therapists during the first decade in this century (Bjørk & Solhaug, 2008: 188 ; Jamtvedt, Hilde & Risberg, 2000 ; Jamtvedt & Nortvedt, 2008). Bergen University College established in 2008 Centre for Evidence-based Practice.

The concept of EBP has been developed into a model containing the following six steps: Reflection - Defining a question - Search for evidence - Evaluate the evidence – Apply the finding - Assess the outcome (Nortvedt et al., 2007).


**Figure 1**: Illustrations of the six steps in EBP. Illustrations can be found at: http://www.scribd.com/zaana/d/13124287-Planning-for-success-Reprioritising-repurposing-and-retooling-with-results

In September 2008 the Centre for Evidence-based Practice and The Norwegian Knowledge Centre for the Health Services (NOKC) launched an online course on EBP: www.kunnskapsbasertpraksis.no (Senter for kunnskapsbasert praksis & Nasjonalt kunnskapssenter for helsetjenesten, 2011a). The course is free of charge and provides an introduction to the six steps of EBP. The course consists of video lectures, text modules and assignments, and is aimed at clinicians, teachers and students in medicine or health professions (Senter for kunnskapsbasert praksis & Nasjonalt kunnskapssenter for helsetjenesten, 2011a). The online course has not previously undertaken a systematic evaluation. However a user description based on pop-ups on the online course was conducted in 2010. 346 users replied, and 84% of these were clinicians, teachers or students (Personal communication with Larun,.10.2012).

## 2.2 Researcher's familiarity of the online course

Before deciding to do my Master's Thesis on the online course, I had only visited the web site once. All I could remember from this brief visit was some blue colours and video presentations on some of the pages. However, based on this first encounter I did wonder whether video was a suitable presentation format for my work environment due to the noise, as I share an office with others.

When I settled on this study, I needed to get more personal experience with the online course. I did this with the eyes of a researcher and not a regular user. I took notes as I worked my way through the entire online course. These consisted of a mixture of my own initial responses to the online course, and questions that were brought to my attention.

In addition I set up a meeting with one of the developers, Lillebeth Larun from NOKC. The purpose was to gain more knowledge of the background for developing the online course. She particularly pointed out the need of knowledge on how to retrieve and critically appraise research before applying the results in practice. This remark helped me find the link between the online course and research utilization.

## 2.3 Research Utilization

To generate knowledge that could be relevant for developers of other EBP tools, I needed to place the work in a theoretical context that would lift the findings out of this specific setting and render them more transferable. Additionally, it has been argued that research which is carried out to promote use of research should build on theory-based

interventions (Thompson et al., 2007). For this reason, I chose to base this study on Estabrooks' ideas for Research Utilization (RU). I decided to connect the user test of the online course to the concept of RU. This means "the use of findings from a disciplined study or set of studies in a practical application that is unrelated to the original research" (Polit & Beck, 2008:29). Given this definition, RU is basically equivalent to the best research evidence in EBP (the highlighted part of figure 2).


**Figure 2**: Illustration of EBP and relation to RU. Inspired by illustration found at: http://hatetoloveresearch.blogspot.com/2010/12/on-using-evidence-based-practice-as.html

According to Estabrooks (1999) there are three ways of using research:

- Direct use (Instrumental), which leads to changing practice.
- Indirect use (Conceptual), which changes attitude or knowledge.
- Persuasive use (Symbolic), for example when you use the results to persuade or convince others.

These three can also be combined in 'Overall use' (Estabrooks, 1999). Literatures referring to Estabrooks' ways of using research are not consistent in their use of terms. Estabrooks is not even consistent herself but points out: "Direct, indirect, and persuasive research utilization correspond to instrumental, conceptual, and symbolic research utilization respectively. The former terms were used because it was thought they would be more readily and consistently understandable" (Estabrooks, 1999:207).

A mix of these terms might therefore be used in this thesis. However I deliberately chose to follow Estabrooks' example and used the terms Direct ("direkte"), Indirect ("indirekte") and Persuasive ("overtalende") use when presenting the concept of RU to the participants. Questions regarding these types of RU were incorporated in some of the tasks in the user test.

## 2.4 Literature review on usability tests

Related to an exam in November 2010, I conducted a limited literature review on usability studies. This gave me valuable insight to how usability tests are conducted, pitfalls and weaknesses of various methods. Existing theories and names of particular interest (like Morville and Nielsen) were also brought to my attention during this work. I also found Rosenbaum and colleagues' Cochrane study (Rosenbaum, Glenton & Cracknell, 2008) at this point. A full bibliography of included studies in this review is found in Appendix I.

## 2.5 Morville's honeycomb framework for user experiences

Peter Morville, a U.S. information architect, has developed a framework to illustrate the facets of user experience in relation to web sites (Morville, 2004). The seven facets are presented as a honeycomb. These facets were used as templates during the template analysis (see chapter 6.4 and 6.5).


**Figure 3**: Morville's User Experience Honeycomb.
(http://semanticstudios.com/publications/semantics/000029.php)

According to Morville & Callender (2010:29) the seven categories are only a starting point, facets can be added or removed. The honeycomb has also been used in other similar studies (Rosenbaum, Glenton & Cracknell, 2008 ; Giguere et al., 2011). The content of the original facets are as follows (Morville, 2004 ; Morville & Callender, 2010 ; Rosenbaum, 2010):

- **Useful:** Does the site help the user to reach his or her goal? Does it have practical value?
- **Usable:** Can it be used efficiently and with minimum error?
- **Desirable:** Is the site something the users want?
- **Findable:** Can the users find the site and locate what they are looking for on the site?
- **Accessible:** Will it work for all users, or are there any barriers to gaining access?
- **Credible:** Does the web site and its content come across as trustworthy?
- **Valuable:** Does the web site represent the owners in a favourable way? Does it give advantages for the users? Does it advance the mission?

## 2.6 Rosenbaum's new framework for user experience of summarized evidence

Sarah Rosenbaum, graphic designer conducted usability tests in one of the studies in her PhD Thesis[1]. She tested the Cochrane Library website. Based on her findings she revised Morville's original framework, but still found it to be insufficient as time and motivation aspects were not included. She therefore added Krippendorff's theory of the meaning of artefacts in use (Rosenbaum, 2010: 108-116).

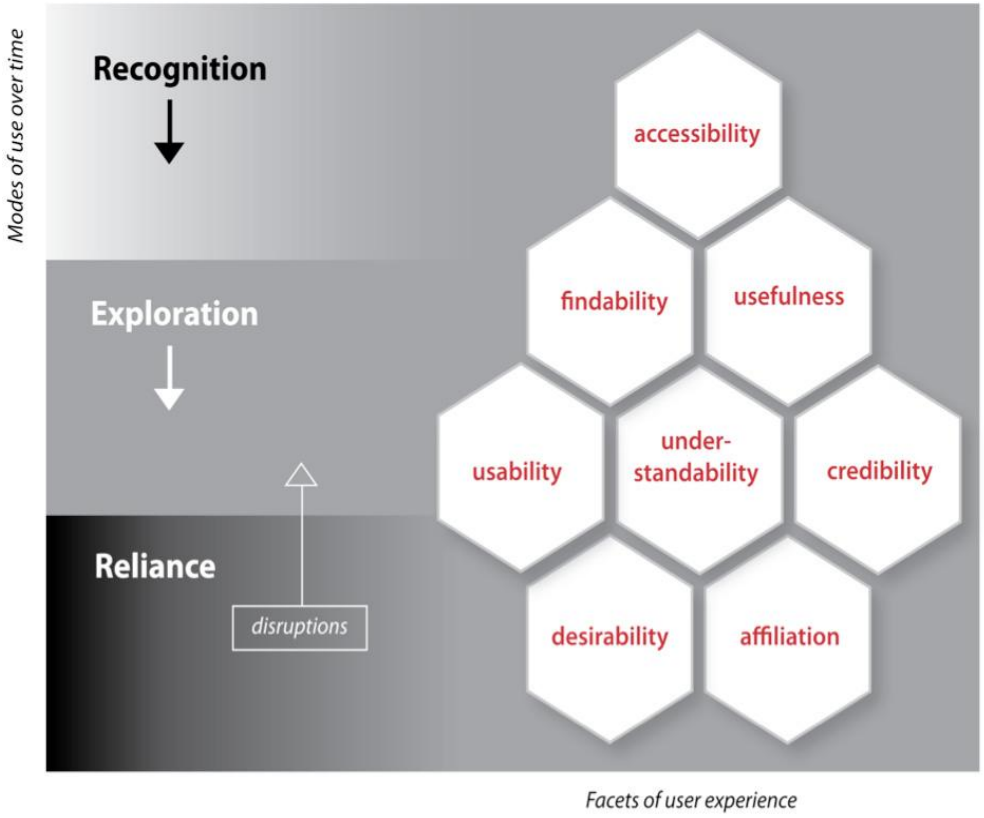


**Figure 4:** The revised honeycomb model combined with Krippendorff's theory of artefacts in use (Rosenbaum, 2010:116).

[1] I was familiar with Rosenbaum's work when I decided to do user tests of the online course. We had had exchanged some e-mails and she had given me some advice on literature before she was appointed as my supervisor.

## 2.7 Nielsen's framework of usability

Jakob Nielsen is engaged in human-computer interaction and is the principal of the Nielsen Norman Group (Nielsen, 2012a). He defines usability by these five quality components (Nielsen, 2003):

- "**Learnability**: How easy is it for users to accomplish basic tasks the first time they encounter the design?
- **Efficiency**: Once users have learned the design, how quickly can they perform tasks?
- **Memorability**: When users return to the design after a period of not using it, how easily can they re-establish proficiency?
- **Errors**: How many errors do users make, how severe are these errors, and how easily can they recover from the errors?
- **Satisfaction**: How pleasant is it to use the design? "

He also points out that usability is not the only important attribute (Nielsen, 2003):

> Usability and utility are equally important and together determine whether something is useful: It matters little that something is easy if it's not what you want. It's also no good if the system can hypothetically do what you want, but you can't make it happen because the user interface is too difficult. To study a design's utility, you can use the same user research methods that improve usability.

Utility reflects if the web site has the features you need. Usability is how easy and pleasant it is to use these features. Whether a web site is considered useful depends on these two factors.

## 2.8 The researcher's presuppositions

In both qualitative and quantitative research, bias could occur. Bias can be defined as "an influence that produces a distortion or error in the study results" (Polit & Beck, 2008:197). In qualitative research, the researcher is subjectively influencing all parts of the research process. The researcher's presuppositions are part of this subjectivity, and could lead to bias if not articulated and paid attention to (Malterud, 2001). Being aware of my presuppositions is very important, although it is impossible to fully put them aside (Polit & Beck, 2008:228).

To help document bias, I have answered these three questions as recommended from Harris' screen lecture at www.kunnskapsbasertpraksis.no (2011) in my reflection notes:

- What was my original interest in this study?
- What do I think I will find?
- How might my personal values/beliefs/opinions/assumptions affect my findings?

These are additional factors that may have influenced the subjectivity of this study:

- I am working as a psychiatric nurse providing information and interacting with others in problem solving situations. My working experience clearly helped me to relax during the user tests. For example I was not stressed if a participant spent some time in silence while reading on the web site or thinking before replying to a follow up question. After conducting my first user test as a moderator, my supervisor made this comment: "I can clearly see you are a nurse due to your ease around people in such a situation." I think my calmness mainly was an advantage for the participants of this study. Only one participant stated she felt the test situation a bit stressful. When relooking at the videos the rest of the participants came across as relaxed and not influenced by the fact that they were being observed. However the comment made me aware of how my role and conduct can influence the execution and outcome of the user tests. This lead to the reflections presented next.
- At work I have a clear therapeutic style or intention when talking or interacting, and I focus on our relationship and what is going on between us. During the user test the knowledge does not mainly evolve based on what is going on between the participant and the researcher, but what is going on between the participant and the online course. I therefore tried to keep some distance to the participants and interfering as little as possible with their actions and words. I asked open-end questions like "How do you find this function", rather than questions with predefined answers like good or bad. However Kvale & Brinkmann (2009:72) point out that knowledge evolving from interviews will be relational.

- My initiative to do this study as my master thesis in EBP might have given the participants the idea that I am an expert in EBP and the online course. This might have made the participants more unsecure or afraid of being embarrassed during the user tests. On the other hand we share role as health professionals. This could make it easier for them to more freely share their opinions compared to if the moderator for example was a graphic designer.

- Our common professional background could also have influenced the findings of this study. I could easily relate to their description of how things work in their clinical practice. This might have lead to an enhanced focus on utility and the participants' internal state.

- The findings of the studies presented in the literature review might have given me a set of lenses that has influenced the test guide and the analysis process. However I don't find this influence traceable as the literature review was conducted over a year before the analysis process started and I did not repeat its content before finishing the analysis.

## 3.0 Research design

Research design can be defined as: "The overall plan for addressing a research question, including specifications for enhancing the study's integrity"(Polit & Beck, 2008:765). The development of this study's research design has not been a straightforward process. An excerpt of my decision trail- and reflection document illustrates this, and is found in Appendix II.

The first choice I made was to conduct a qualitative study of the online course. Evaluation of web sites can be looked at from a quantitative point of view focusing on measurable outcomes like time spent to solve a task, or how many errors were made (Rubin & Chisnell, 2008). As my main interest was to learn more of the subjective experiences of real users, a qualitative approach would help me to understand variation of the experience among different users and why this is. However the study design is influenced by quantitative thinking as the test guide is based on the works of Rubin & Chisnell (2008) and Kuniavsky (2003). The quantitative data provided during data collection will not be analysed and presented specifically, but they have influenced the analysis and presentation of the qualitative data.

Carter & Little (2007) illustrates three components that should be paid attention to during the entire research process: Epistemology, methodology and method. Their illustration is presented in Figure 5.

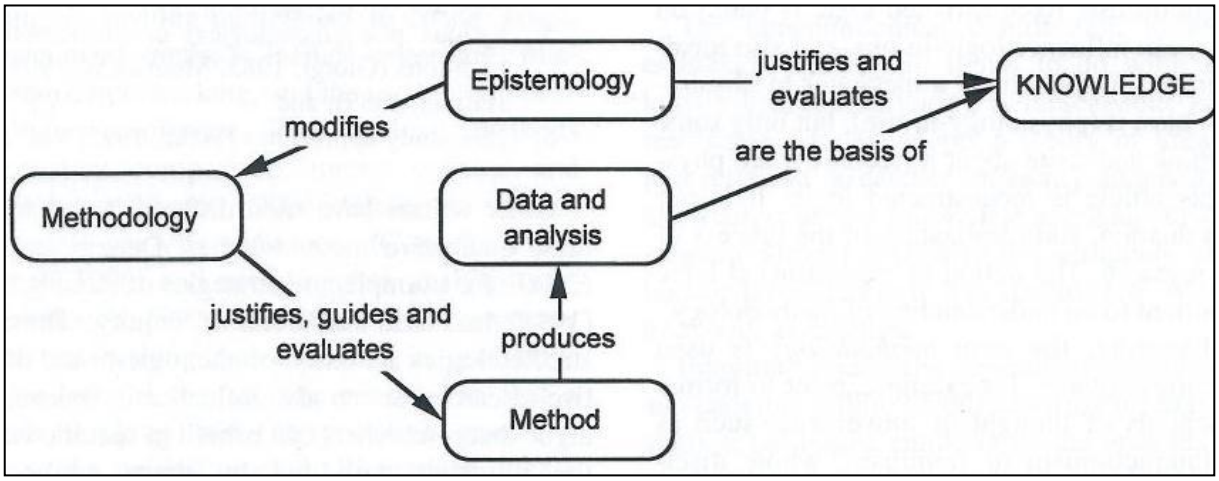


**Figure 5**: The relationship between epistemology, methodology and method (Carter & Little, 2007:1317).

## 3.1 Epistemology: Pragmatism

Epistemology can be defined as "the nature of knowledge" (Thornquist, 2003:8-9). The relationship between the researcher and what is being studied is essential, as well as the actions the researcher needs to take to get close to the study participants (Creswell, 2007:247, 17-18). The epistemology also "contains normative values which are reflected in the way quality in methods is demonstrated, and how the researcher will communicate the findings of the study" (Carter & Little, 2007:1321-1322). This study is based on pragmatism.

Pragmatism is often related to the American philosophers Peirce, James and Dewey (Kvale & Brinkmann, 2009:70). Researchers with a pragmatic worldview focuses on the practical outcome of research, and the main questions to be answered can be described as "what works" (Creswell, 2007:22). The choices regarding research design are influenced by the research question and what will be most suitable to answer the question (Creswell & Plano Clark, 2007: 24).

The focus of this study is the interaction between the user and the online course, and it is how the researcher observes and processes this interaction that will generate knowledge of the user experience. The main goal of this study is not to develop a new theory, but rather provide knowledge for carrying out a specific practical task; improving the design.

## 3.2 Methodology: Qualitative description

A study's methodology describes "the process of research and how the qualitative researcher conceptualizes the research process in a certain way" (Creswell, 2007:17,248). Choice of methodology will also interact with choices regarding objectives, questions and study design of the study in a two-way process (Carter & Little, 2007:1323).

Initially I struggled to decide which methodology to use. I could have carried out an ethnography study e.g. looking at experiences and behaviour related to use of the online course in a hospital ward, or a case study e.g. an in-depth description of what impact the online course has on one or more health workers' practice (Creswell, 2007). Grounded theory has also been used as a methodology related to usability testing (Cracknell, 2007). I also considered a user-centred evaluation study (Sverdrup, 2002). Being guided by my overall research question I finally chose qualitative description (QD) as my methodology.

Polit & Beck (2008: 237) use the term Qualitative Description to cover various qualitative studies that do not fit into common qualitative methodologies or have a formal name. The term Qualitative Description is often wrongly referred to as Sandelowski's method (Sandelowski, 2010). However, her definition explains the methodology well and it is often referred to when qualitative description is being discussed (Sandelowski, 2010 ; Neergaard et al., 2009 ; Milne & Oberle, 2005).

Sandelowski states: (2000:334):

> "Qualitative descriptive studies have as their goal a ***comprehensive summary*** (my own italics) of events in the everyday terms of those events.... Qualitative descriptive study is the method of choice when straight descriptions of phenomena are desired."

Sandelowski points out: "although qualitative description studies are different to phenomenological, ethnographical or narrative studies, they still may have hues, tones and textures from these approaches" (Sandelowski, 2000: 337). However, there are certain general design features of qualitative descriptive studies. These include (Sandelowski, 2000: 338-339 ; Neergaard et al., 2009):

- Purposeful sampling, striving for maximum variation.
- Data collection may consist of: Moderately structured open ended interviews, Focus group interviews, Observation of targeted events or Examination of documents and artefacts.
- Qualitative content analysis or template analysis style, which could describe both qualitative and quantitative content. The researcher stays close to the data during the analysis.
- The data is re-presented in a descriptive summary in everyday language. These summaries may form a basic knowledge that could lead to grounded theory or phenomenological studies.

Based on these features, I found qualitative description compatible to the context of my study, the objective and the research questions.

## 3.3 Method: User testing

Method is described as "the steps, procedures, and strategies for gathering, managing, analyzing and reporting data in a study" (Polit & Beck, 2008:758). The selected method will determine the final research product, and should therefore be paid closely attention to" (Carter & Little, 2007:1325).

The chosen method is a user test[2].The test guide was influenced by descriptions of usability tests. Usability testing is a common method for gathering information of user's experiences of a product (Kuniavsky, 2003 ; Rubin & Chisnell, 2008). During a usability test the participants are asked to use the product as in everyday life while being observed. Some aspects of a user test also resemble an interview as participants' opinions and reactions are of interest. The participants are asked to Think-aloud, "verbalizing their thoughts as they move through the user interface" (Nielsen, 2012b) . Additionally the moderator asked follow up questions.

Usability tests are mainly conducted in a "laboratory" setting. This means that the test takes place in a room set up for this purpose rather than e.g. the user's workplace (Rubin & Chisnell, 2008). The room contains a computer, the participant and the moderator, as illustrated in this photo:

[2] Due to possible misinterpretation of the word "test" could lead to in a qualitative study, I will emphasize the fact that it is the online course that was being tested and not the users.

**Figure 6:** The laboratory setting of a usability test. (http://www.facit-digital.de/en/services/usability-test-ensure-ease-of-use-with-usability-testing.html).

The observers may be present in the test room, but should be placed behind the participant as this is less disturbing. Ideally the observers should be in a different room, looking through a one-way mirror, or following the participants' actions in real time through video recordings (Rubin & Chisnell, 2008 ; Kuniavsky, 2003). Being in a different room also allows the observers to discuss during the test session, and allowing more people (like the web site's developers) to take part.

## 3.4 Ethical considerations

I consulted the Regional Committee for Medical and Health Research Ethics, Western-Norway. They advised me that their approval was not necessary as my study did not involve patients, and would be considered as an evaluation project rather than medical or health research.

Since the method involved audio and video recordings, an approval from the Privacy Ombudsman for research (Personvernombudet) at the Norwegian Social Science Services (NSD) was needed. This was obtained 5th.of May 2011, and a copy is enclosed in Appendix III.

The data collection was based on voluntary, informed attendance of the participants, also known as informed consent (Polit & Beck, 2008: 755). Informed consent is based

on the principles of the Nuremberg Code and Helsinki declarations (Ruyter, Solbakk & Førde, 2007). Prior to the test session, the participants had been provided oral and written information according to guidelines and approval of NSD (Appendix IV). They were also sent an information video illustrating what a user test may look like. This was done to help them understand more of what they were agreeing to when volunteering, and to prepare them for the test day. Before the actual test session, information was repeated and the participants and researcher both signed a consent form (Appendix V). The participant could at all time and without explanation withdraw from the study.

During the test sessions there were also ethical considerations to be aware of. During a usability test some participants may feel exposed and think we are observing their problem solving abilities, and not the problems and difficulties of the website. They were already informed that we were focusing on the web site. Due to the setting and possible anxiety this information was repeated. This was done cautiously as some participants might feel irritated or insulted by repetition of information. It is important that the moderator has good communication skills, and pays attention to each individual participant. The moderator did not take notes during the test session to be able to concentrate on the participant's wellbeing.

Anonymity and confidentiality are important factors in conducting a sound ethical study. To protect the participant's anonymity measures were taken according to the procedures of NSD (see Appendix III). In addition the quotations used in the presentation of the findings do not refer to a specific participant. This was done due to the low number of test persons and because some of the participants were known to each other. However, I have made sure that quotes from all participants are presented.

# 4.0 Preparations prior to data collection

This chapter describes the practical and mental preparations necessary before data collection.

## 4.1 Establishing a research team

To help me conduct the user tests, a research team of three was established. This consisted of one of my supervisors, a fellow student and me.

My supervisor provided a lot of practical help and guidance based on her previous experiences with user tests. Her main job during the data collection was being one of two observers, and she was focusing on the participants' verbal comments.

My fellow student was looking at the learning outcome of the online course in her Master's Thesis, and therefore familiar with the online course. She is also working as a teacher and I find her naturally at ease when interacting with people. My fellow student and I alternated the positions as moderator and second observer, focusing on the participant's actions. None of us were not filling the role as moderator if the participant was familiar to us (e.g. friend or pervious collaborator) to avoid the relationship's influence on the participants comments or reactions.

The research team worked together during the data collection and at the end of the analysis as a peer review group.

## 4.2 Development of test guide

When deciding which features to be included in a usability test, Kuniavsky (2003:268) recommends to look at features that are *Often used*, *New* or considered *Important* by the users.

The online course has been linked to Google Analytics since September 2008. This is a "web analytics solution that gives you rich insights into your website traffic and marketing effectiveness"(Google Analytics, 2011). This program shows for example how users enter the online course, which pages they look at, how much time they spend browsing the course, and on which pages they terminate their visit. In addition I have asked the developers of information on what the newest feature on the site is. Appendix VI shows some examples of tasks from the user test and the reason for developing this specific task. I have added a column describing my hypothesis, ideas or questions to document my presuppositions. A full copy of the test session guide is found in Appendix VII.

## 4.3 Development of observation guide

The observations were partly structured. One observer focused on the participant's actions, typing them directly in Morae's video file (see chapter 5.2 for more information). The other observer focused on the participant's verbal comments. This

observer used space under each task in the test guide to note down their comments during the user test.

In addition these symbols were used by both observers to mark interesting sequences of the session. The observation guide is an adapted version based on my supervisor's experiences from her PhD Thesis (Rosenbaum, 2010:65):

X: Indicates a minor or cosmetic problem. For example the user doesn't like the colors.

XX: A clear hindrance that caused confusion or frustration for the user. Errors are made, and second attempts are needed to complete the task.

XXX: The user is not able to complete the task and gives up, or needs assistance.

O: The user makes a comment on a feature or aspect of the online course that he or she likes or find useful.

OO: The user makes a suggestion regarding the existing features or an additional feature of the online course.

**Figure 7**: Marking of findings during observation.

## 4.4 Creation of information video

A short video was created to provide information to possible participants on how the user test would be conducted. My fellow students in my study group helped out by acting in and recording the video.

## 4.5 Pilot test

A pilot test was carried out to review the user tasks and the observation guide. This took place at NOKC's office in Oslo. The purpose was to prepare the researchers to the main data collection, and make improvements on the first draft of the test guide. The research team alternated the positions of moderator and observers to make sure all were prepared to fill the different functions during the main data collection.

Two participants individually tested the same tasks. These were recruited through the researcher's personal and professional network. One was new to EBP, while the other

had years of experience with EBP. The pilot test proved the initial tasks to be successful, but to reduce the time pressure on the participants and have more time to follow up questions the decision was made to expand the time from 60 to 90 minutes per test session. The timeframe was still within what is common and reasonable for a usability test (Kuniavsky, 2003). My supervisor advised me to include the data collection from the pilot test in my main data collection, as only minor and mostly cosmetic changes were made to the initial user tasks.

The pilot test gave me an experience on how demanding and tiring a test session can be, both as a moderator and an observer. The test team therefore agreed that it is not advisable to do more than three tests in one day.

# 5.0 Data collection

The phase of data collection started in August 2011 by sampling participants. The user tests took place in September 2011.

## 5.1 Sampling of participants

The target groups of the online course www.kunnskapsbasertpraksis.no are health care professionals, teachers and students. Based on previous research showing relatively limited use of research findings in practice among health professionals (Forsman et al., 2009 ; Gerrish et al., 2008 ; Squires et al., 2011), my focus in this study was limited to this group. Health professionals in this study may be a nurse, a social educator, a radiographer, an occupational therapist or a physiotherapist. I have chosen these professional groups given their similarities in educational background and work situation. Groups that significantly differ on these points such as medical doctors or health care assistances were excluded as potential participants in this study. People being employed at the Centre for Evidence-based Practice or NOKC were not considered to be suitable participants due to possible loyalty conflicts. All participants taking part in the user tests were given a voucher of 500 NOK each as a gratitude for their time and effort. The costs were covered by NOKC.

I had a few inclusion criteria in addition to being a health care professional; the participants must use a computer daily at work and speak and understand Norwegian. These criteria prevented me from getting bias caused by language barriers or poor computer literacy.

We build on our existing knowledge when we acquire new knowledge (Patel et al., 2009). Therefore it was important for me to gain basic knowledge of the user's background, such as how much experience they had using a computer and the Internet. In this study it is also vital to know whether the participants have any previous knowledge of EBP. This led to the development of a background questionnaire for all potential participants, see Appendix VIII.

Participants were recruited using a snowball method (Polit & Beck, 2008:354-355). As a starting point those who participated in the pilot test, former students of EBP and members of the national EBP network living close to Oslo were contacted by e-mail. 65 invites were sent out. All had previously given permission to be contacted either through personal contact during my poster presentation at the national EBP network conference in April 2011, or at their last meeting during their EBP studies. In the invitation the receivers were advised to return the e-mail stating they would like to be taken off the e-mail list if they had changed their mind since the permission was given. Only one receiver did this.

The first e-mail contained general information about the study, and the receiver was encouraged to pass it forward if they had any suitable colleagues or friends. They were not requested to inform me if they did so, but seven confirmed they did. I have therefore no exact number of how many actually received the invitation.

Eleven persons responded that they were willing to participate. They were sent an information video that described how a user test takes place and the background questionnaire. One withdrew her participation after watching the video. In line with QD's for maximum variation in sampling we strived for variety among the participants in relation to previous level of knowledge of EBP. This and availability on the test dates were the decisive factors for who finally participated in the study. I had agreed test sessions with eight participants, and had two participants able to come on short notice as stand-ins if someone did not turn up or became ill. During the test days one participant had to cancel at short notice, and one participant and one stand-in had to cancel due to illness. I therefore completed seven user tests during the main data collection. After completing all seven test sessions, the research team concluded we had enough data material and no new topics had emerged during the past two sessions. We concluded that we had achieved reasonable saturation (Polit & Beck, 2008:70-71).

Adding the data collection from the pilot test, the sample of this study consists of nine participants all together. They were all women in their twenties to their sixties. There were seven nurses, one occupational therapist and one radiographer. Eight out of nine had undertaken some sort of further education after their bachelor degree. Four participants were new to EBP while five were experienced.

## 5.2 Recording of data collection

We used Morae usability test software; version 3.1.1, for audio and video recordings of the user tests. This program also provides information of activity on the computer screen and the keyboard. Morae allows the observers to type notes directly into the video recording program, which was useful when later transcribing and analyzing the data (Techsmith, 2011). The quantitative data Morae provided, like time spent on each task, were not used during the analysis of the data. The quantitative data were biased by the design of the test guide as it consisted of both tasks to be solved and questions to answer. Time spent could therefore vary a lot depending on how talkative the participant was. Not using the quantitative data was not considered a disadvantage in this study. The test guide would have to be designed differently if mixed methods were to be used.

Morae recordings will be erased immediately after the end of this work, at the latest by the end of year 2012.

## 5.3 Conducting the user tests

The user tests were conducted in Oslo, at NOKC's office.

The user test consisted of the following three phases:

- Information, introduction and warm up
- Performing the user tasks
- Sum up and debrief

The main aim of the first phase was to establish trust and help the participant to relax. The first phase started by moderator guiding the participant to the test room. The moderator made sure the participant had received and understood the information sent out in advance. If the participants had no further questions, the informed consent form was signed and a voucher given to the participant. The moderator then started the

introduction by reading out loud some general information on how the test session would take place. This made sure that all participants received the same information. Then the moderator started the recording of the session and began to ask some questions about the participant's background. These questions provided useful information to the researcher, as well as being a warm up exercise for the participant.

During the second phase the participant worked her way through various tasks. This phase constitutes the main part of the test session, as well as the main part of the data collection. To get data on the experience of the online course, the moderator encouraged the participant to think aloud while performing the tasks (Rubin & Chisnell, 2008:204). This technique means that the participant comments on the thoughts, actions or feelings he or she experiences during solving the tasks (ibid). A demonstration on how this technique works was given by the moderator as part of the information in the first phase. The moderator presented the tasks to the participant, but otherwise remained silent. If the participant had strong non-verbal reactions like a facial expression, the moderator prompted the participant to articulate thoughts or feelings by asking what she was experiencing. However, the technique was used with care as it could interrupt the participant's processing of thoughts. Ideally the participant should verbalise unprompted (Rubin & Chisnell, 2008:208).

After completing the tasks, the test session entered the third and last phase; sum up and debrief. Some of the participants may have found it hard to express their experiences during the previous phase. They were given some open-ended questions to summarize their thoughts and preferences related to the online course. The participants were also asked questions related to how the user test was conducted. This gave them a chance to give feedback that could improve the next test session. This phase did not end until after the participant had left the test room, the recordings had have been saved and the moderator and the observers had met to debrief and sum up their experiences.

## 5.4 Changes to the test guide

After completing five tests some changes were made to the test guide. This was done due to saturation of some of the questions, meaning the participants' replies were all consistent. An example of a change: As the participants consistently answered that they did not consider it to be an online course, questions like "Would you have like to

receive a diploma after completing the course? How would you feel if you had to sign in to get started? “, were added.

Nielsen (2000) argues that 85 % of usability problems will be detected after 5 user tests. These changes are therefore not likely to create much trouble for the validity of the findings.

## 6.0 Analysis process

According to Polit & Beck (2008:507) “ the purpose of data analysis is to organize, provide structure to, and elicit meaning from research data.” This happened in several stages or phases in this study.

### 6.1 Initial reactions

The first phase of the analysis process overlaps with the last part of the user tests. When the participant had left the research team gathered and summed up their experiences. Each research team member presented their initial thoughts and reflections made during the observation. In addition we asked ourselves the question: “What surprised us during this session?” (Kuniavsky, 2003). The notes were set aside and re-looked at the end of the analysis process.

### 6.2 Report of preliminary findings

Based on the initial responses from the research team a report of the preliminary findings from the data collection was sent to the developers of the online course. The report is enclosed in Appendix IX. The report showed findings that were consistent and of practical nature specifically related to this online course, and illustrated findings that are not necessary highlighted in this Master’s Thesis. This report will also be the base for a final report that will be handed over to the developers in June 2012.

### 6.3 Transcription

Before the analysis began, the data collected was transcribed. During transcription, the data changes from speech to written form. During this process interpretation may happen, and the statements are taken out of their original setting (Kvale & Brinkmann, 2009: 186-187). In QD the researcher should stay close to the data (Sandelowski, 2000). This has been my intention; however some pragmatic choices regarding the transcription have been made. For example: I have not transcribed word by word when

a participant has been reading content from the web site. I have simply stated “reading from web site on topic so and so”. I also transcribed directly into a copy of the test guide to save me from transcribing the moderator’s questions. Only new follow up questions from the moderator were transcribed. These instructions were passed on to the professional transcriber, however she did not transcribe directly into the test guide.

To make the workload of transcription manageable this was partly done by a professional transcriber. This has both pros and cons. If I had done all the transcription myself, I would have immersed more quickly into the collected data. However, it would have been a time-consuming process. I considered the disadvantage of having a professional transcriber small due to the analysis process’ deductive starting point with a template analysis. Besides, I transcribed all the participants’ actions and this helped me to get familiar with all the data collected. I also had the video files at hand at all times during the process, and used them frequently e.g. if I was unsure of the context of a statement.

## 6.4 Template analysis

Qualitative description uses qualitative content analysis or template analysis style as analyzing methods. Sandelowski (2000:338) describes their relationship this way:

> Qualitative content analysis is the analysis strategy of choice in qualitative descriptive studies.(...) Although researchers might also begin the qualitative content analysis process with pre-existing coding systems, these systems are always modified in the course of analysis, or may even be wholly discarded in favour of a new system, to ensure the best fit to the data. Miller and Crabtree (1992, p. 18) described this approach to analysis as the “template analysis style.

Miller and Crabtree (1999:164) recommend “ researchers wishing to confirm an already well-defined hypothesis, test a theory, or explore a limited facet of the data may construct an analysis process that begins with more structure, such as provided by a template organizing style that uses code manuals”.

A template analysis style will provide concrete categories which seems to match this study’s descriptive research aim (Polit & Beck, 2008:510). I used Morville’s Honeycomb model for user experiences of web sites as the pre-set categories for the

template analysis. The idea to do so originated from the report written on behalf of the owners of the online course (Hafslund & Larun, 2009).

## 6.5 The analysis process step by step

The analysis followed the template analysis method as described by Crabtree &Miller (1999:21). Morville's Honeycomb model (2004) was used as a starting point for the first coding of the data. Content that did not fit into these seven categories were marked as either uncoded material or irrelevant comments (e.g. reading information from the web site). Colour coding following the Morville model was used for the initial seven categories. The uncoded data were marked yellow and given descriptive codes (Miles & Huberman, 1994:57). This is in line with the idea of staying close to the data in qualitative description (Sandelowski, 2010:78). The data collection from each participant was coded separately, starting with their comments and then moving on to their actions. A summary sheet was made for each participant. A reflection sheet with the researcher's remarks on this material was also added.

The next phase of the analysis process was more interpretive and inductive. After completing this process on data from all nine participants, all data with descriptive codes were gathered in one document. This now consisted of 16 different descriptive codes. By looking at patterns and themes among these codes three new themes emerged; recognition, being able to identify with the web site's content, and understanding the information presented. Some of the original 16 descriptive codes were found to fit into Morville's categories during this phase of the analysis work. Three themes were formed consisting of the rest of the descriptive codes. After a peer review process with the other members of the research team these themes were redefined to these facets: Familiar and Understandable.

During the inductive phase of the analysis process, matrixes were used as a tool to provide an overview and more clarity. The aim of the matrixes was to provide a descriptive summary related to each facet of the user experience (Cassell & Symon, 2004). The work on the matrixes started in the analysis phase, and was revised during the peer review and during writing up the findings in this thesis. Examples of the matrixes are found in figure 8.

CREDIBLE

Definition of this facet (Morville, 2004 ; Morville & Callender, 2010 ; Rosenbaum, 2010): Does the web site and its content come across as trustworthy?

Question number 2.4 in the interview guide is influenced by this facet.

| Where was this facet identified? | Main findings | Tendency among the two groups | Severity of problem | Illustration statement | Comments/improvements |
|---|---|---|---|---|---|
| As a comment on first impression of the web site.<br><br>When being asked about what they consider as strengths of this web site. | Both Bergen University College (BUC) and The Norwegian Knowledge Centre for the Health Services (NOKC) are considered serious actors with good ethics. Therefore the site is considered trustworthy. | Both groups contributes to and agrees to the main findings | One user expected literature references. This decreased credibility. | "It seems up to date and trustworthy. The first impression of the web site is that it looks professional."<br><br>" I think this website will describe the concept of EBP, how I can participate in this online course. I expect it to consist of facts related to EDP with references to where the information is taken from." | There are no references to information presented on the web site! I am surprised by this. References will increase credibility, and also set an example for the users to be critical to what they are being presented. |

Morville, P. (2004) *User Experience Design* [Internett], Semanticstudios.
Tilgjengelig fra: <http://semanticstudios.com/publications/semantics/000029.php> [Nedlastet 17.01.11].

Morville, P. & Callender, J. (2010) *Search patterns.* Beijing, O'Reilly.

Rosenbaum, S. (2010) *Improving the user experience of evidence. A design approach to evidence-informed health care.* Doktorgrad, Arkitekt- og designhøgskolen i Oslo.

**Figure 8**: Example of matrix for each facet describing the user experience of www.kunnskapsbasertpraksis.no

## 6.6 Language translation

The quotes presented in this thesis were translated at the end of the analysis process. I strived to translate both the content and the tone of the quotes, repeating the video recordings as help. During the peer review the rest of the research team found the quotes familiar and to have kept their authenticity.

## 6.7 Quality enhancement strategies for the data analysis

The qualitative data was analysed by me alone and not the whole research team. This may be a methodological weakness to the study. The following strategies was used to increase the credibility of the findings (Polit & Beck, 2008:543-549):

**Theory triangulation**: As Morville's framework was insufficient for the data, new facets were developed. These are discussed and compared to existing literature and different theoretical frameworks in chapter 9.1 and 9.2.

**Peer review**: The findings were presented to the rest of the test team for discussions and comments. This led to revising from three to two new facets describing the user experience.

**Member checking**: The main findings based on all nine user tests were presented to the participants by e-mail. See Appendix X. The participants were asked to give a short feedback on the findings as a whole, e.g. if it was recognisable and if they had some

objections or comments they felt were missed out. One reminder was given two days before the deadline of response. Eight out of nine participants replayed and stated they had no objections or additional comments. No reply was received by the last participant.

**Transparency**: Any objections from the participants will be discussed with the supervisor and documented in the work.

**Reflexivity**: I documented my presuppositions before and during the process. I also made reflective notes and a decision trail throughout the research process. These are now incorporated in the thesis.

## 7.0 Critique of the research process

Despite the best of efforts, choices made during the research process can lead to negative consequences like decreasing the validity and the trustworthiness of the findings. In this chapter some of the study's weaknesses are presented related to the phase they occurred in.

**Recruiting**: By using snowball sampling as the method for recruiting participants, I lost track of the process. Invitations sent by e-mail can easily be forgotten as other mail fills the inbox. Since I had no way of keeping track of who had received the invitation, it was not possible to send reminders. It is possible that I only got participants that were highly motivated.

**Sample**: Due to the low number of potential participants I was not able to do a strategic sampling. In the end, all available participants were included. All the participants were women. Ideally I would like to have both sexes represented. However, the sample may still reflect reality, as the majority of health professionals are women. The number of participants characterizing themselves as novices or more experienced in relation to EBP turned out to be fairly even (4 and 5). The background questionnaire describing the knowledge of EBP is based on self assessments. This is a potential weakness.

**Data collection**: I consider the laboratory setting to be the main limitation of this study. The ideal in a qualitative descriptive study in a naturalistic setting (Sandelowski, 2000). The advantage with a laboratory setting is less disturbance and interference, but the disadvantage is that you miss out information on how the natural environment affects the user experience of the web site (Levine & Chaparro, 2007). The findings will

therefore reflect a protected environment, and this can limit the validity and generalizability of the findings.

Another important factor is the fact that the user test only provides information like a snapshot of the user experience. It is likely that the experience might change over time as the structure and the content get more familiar (Rosenbaum, 2010:112). The findings are valid, but only for certain for the time and place the user test were conducted.

While relooking at the videos during the analysis, I discovered that the last two tabs of the online course (applying findings and assessing outcomes) were underexposed in the user tests compared to the rest of the online course. Initially I had an idea that these tabs would be of most interesting for clinicians and therefore they would chose these tabs when asked to browse freely. The participants proved me wrong in this presupposition, most of them browsed the tabs chronologically and the last tabs were mainly browsed superficially. This might have biased the findings. It is possible that exploration on these tabs would have influenced the participants' opinions on for example usefulness.

**Analysis**: The analysis was conducted by only one researcher. This could have increased subjectivity of the results. Several enhancement strategies were in place to minimize this risk (see chapter 6.7). In this study only the qualitative data collected was analyzed. I had some quantitative data from Morae, for instance time used to solve tasks. But these times varied a lot depending on how talkative the participants were, so they don't provide useful information. By using method triangulation the quality of the findings might have been enhanced, particularly for some of the facets like Findability and Usability.

## 7.1 Changes on research question from the research proposal

My research proposal was accepted in May 2011. As my level of knowledge raised on topics involved in this study and experiences with a research process was gained, some changes from the research proposal was made. These changes have been kept track of in my reflective notes. The wordings of the research questions are changed and the focus may have been strengthened, but the essence remained.

The overall research question was originally:

*"How do health professionals in Norway find the user experience of the online course www.kunnskapsbasertpraksis.no?"*

This was changed while writing the draft to the article. A more focused and specified wording was needed to capture more of the study's fundament, therefore the laboratory setting was added.

Five research questions were originally defined to capture various aspects of the overall research question:

1. What characterize the user experience of this course when being explored in a laboratory setting?
2. Is the experience and use of www.kunnskapsbasertpraksis.no different between those with prior knowledge of EBP and those who use the online course as an introduction to EBP?
3. According to the participants: When or where will they use the online course as it presents today?
4. What changes are needed for the online course to enhance more research utilization?
5. Can or should the content of the online course be structured according to the different ways of research utilization?

While writing up findings it became clear that some of these research questions, e.g. nr 5, were too detailed to be answered based on a small amount of information that emerged on this topic.

## 8.0 Findings

Findings from the user tests conducted in this study can serve a dual purpose: It can provide information that can be transferable to other EBP tools, and it can provide detailed information that can help improve the design of www.kunnskapsbasertpraksis.no. Only the main findings providing transferable knowledge to other web sites will be presented here. Therefore I have chosen not to present any screen shots from the online course. A detailed report of findings specifically related to the online course will be presented to the developers in June

2012. This will be based on the format in the preliminary findings report enclosed in Appendix IX. Screen shots illustrating findings may be included in this report.

## 8.1 The overall research question

In this chapter the findings related to each facet of the user experience will be presented. These facets are responses to the overall research question: *How do health professionals in Norway experience of the online course www.kunnskapsbasertpraksis.no when exploring it in a laboratory setting?* The first seven facets cohere to Morville's Honeycomb used in the template analysis, while the last two have evolved from the findings not fitting into these categories.

### 8.1.1 Useful

The novices of EBP wanted to explore more of the online course after completing the usability test, while the group with previous knowledge of EBP stated they would use it as a repetition. Yet both groups felt the online course to be insufficient to cover their needs. One user remarked: *"It is too in-depth as an introduction and too superficial for those who want in-depth knowledge."*

The participants stated they would recommend the online course to their colleagues. Searching for and critically appraising literature were considered the most relevant steps of EBP at the workplace. However, it was questioned whether the online course could be used at the work place. One user put it like this: *"I have my doubts whether I would use it during my working hours, and when I come home I am too tired. I would not have used my spare time on this. I don't think I would have used it unless I was to do a masters degree."*

It was not evident to the participants that it was an online course. Eight out of nine would rather describe it as an information web site: *"It seems more like an information web site than an online course to me."* The one recognizing it as an online course stated: *"I think it is an online course to use as a supplement when you study EBP... This online course can give you a clue of what EBP is, but it is not sufficient to help you put it into practice."*

### 8.1.2 Usable

It was not obvious to all users that the home page was the start page. A direction of use was requested. The older the user, the stronger was the request for a direction of use.

These two statements illustrate this*: "I am very uncertain if this is the start page or not. It feels like I am in the middle of something... Where shall I start?"* and *"If this is an online course, I would have expected to hit a start button somewhere. Can I just jump from one tab to another, or do I have to do them in a chronological order?"*

The glossary function in the online course was considered valuable, but difficult to use as they were linked to other web sites. This created confusion among some users, and all found it time consuming and annoying: *"I did not expect a link to a different web site and then have to download the glossary. It is time consuming and I would have searched for an answer elsewhere."*

The small print on the web pages was an issue for most users. Along with an overwhelming amount of information this represented a crucial barrier of use for some of the participants: *"Do I have to read all this small print? It is way too small for me."*

The participants were asked if the different needs among the users e.g. introduction or in-depth knowledge of EBP could be solved by making different paths in the online course. This was considered favourable to all users. One novice in EBP stated: *"It would have helped if it was two versions, one introduction and one in-depth. Now it is too long. I would not have taken the complete course."*

### 8.1.3 Desirable

In general the users liked the online course. They particularly liked the video lectures, but would prefer them to be shorter. A mixture of written information and videos was considered stimulating. More pictures, comics, graphics, practical examples or colours could be used as illustrations both in the written information and in the videos. One user commented: *"The idea of video lectures is good. However the quality and how they are presented could be improved. Add a few more graphics or illustrations. This would be better than looking at this persons face most of the time. It has great potential, but it is not quite there yet."*

When asked about what they did not like, once more the overload of information was brought up: *"To be honest, I would have left by now. It is not that I don't like the web site; it is just overloaded with information. It would have taken me too long to find the information I was interested in."* This comment was made after browsing the web site

for about three minutes. Both groups agreed to this finding, but the users that were new to EBP were most likely to leave the course.

### 8.1.4 Findable

When asked to find the online course from an empty web page two users searched for "online course" and had problems finding the web site. One knew who had developed the site and searched for links on the BUC and NOKC's web sites. The rest of the users used Google search engine and found it at first attempt when typing "kunnskapsbasert praksis". When returning to the online course's home page after some browsing, only four users used the logo for navigation. These were the younger participants.

The users demonstrated several ways of navigation when solving the various tasks presented in the user test. All used the tabs as their main guidance for navigation. One user proclaimed: *"The layout is very logical; you just follow the tabs... It is quite easy to navigate."* The left side menu was not found to be confusing, much thanks to the 'you are here' marker. Four users used the learning objectives to check if they were on the right page to find what they were looking for.

The search function was particularly used by those without prior knowledge of EBP. This was their main navigation strategy when asked to find certain information in the course. On the contrary those with prior knowledge of EBP hardly ever used the search function. They navigated the web site based on their understanding of the steps of EBP and did not always hit straight on, but found what they were looking for quite quickly. One described this process like this: *"It's not very hard to find, really, if you're not afraid of clicking around a little bit."* Both groups found the search function not sensitive enough, e.g. if there were errors in spelling or they searched for an English word, no hits were found. The hit list did not always put the most relevant hits first. For example when searching for "kvalitative metoder" the most relevant hit was number four on the list. This caused confusion, particularly for the novices of EBP.

### 8.1.5 Accessible

The online course is freely accessible for anyone who has a computer and Internet access. This was highly valued. These statements illustrate this: *"One good thing is the accessibility. You can access this web site at any time from any computer, whenever you like."* and *"Due to free access, it is easy to recommend this web site to others... And it is easier than buying a book on EBP."*

Due to changes in the test guide the last four participants were asked how the user experience had been affected if they had to sign in to access the online course. They all replied that a more formal entry was not considered necessarily and was considered to have been a drawback both for accessibility and usability. One user commented*: "I would not have registered or signed in; it would have made it too time consuming. If I had to sign in, I would probably have left the web site and searched for information elsewhere."*

### 8.1.6 Credible

Both Bergen University College (BUC) and The Norwegian Knowledge Centre for the Health Services (NOKC) were considered serious actors with good ethics. Therefore the users considered the site trustworthy. ***"****It seems up to date and trustworthy. The first impression of the web site is that it looks professional."*

One user expected literature references:*" I think this website will describe the concept of EBP, and how I can participate in this online course. I expect it to consist of facts related to EBP with references to where the information is taken from."*

### 8.1.7 Valuable

The home page states its mission: This online course in evidence-based practice teaches you to find, critically evaluate and use research-based knowledge so that you can make evidence based decisions. All participants stated that the online course could stimulate to more indirect use of research in their workplace. However it can be difficult to separate the different types of research utilization. This statement illustrates this: *"I think it is hard to separate the different types of use of research. But I think it would mainly stimulate to indirect use of research as the site is providing information."* The participants would recommend the online course to their colleagues, indicating both value for the users and the owners of the online course. A more formal entry and accreditation of the online course was not considered valuable among the participants.

### 8.1.8 Familiar

This new facet of the user experience describes aspects like whether the user can either identify with or recognise the content of the online course. A synonym to familiar is recognizable. The participants used their previous experiences or knowledge to guide themselves while exploring the online course. This improved the user experience. These are all statements illustrating recognition:

*"I expected to find search near the top right corner, and I did."*

*"When doing a search, I usually go to the first hit on the result list."*

*"I have been on this site before, and I also recognize the tabs as they are following the steps of the EBP process."*

*"This illustration is typical for health professionals, even though I have not seen it before."*

Another synonym for 'recognize' is 'identify'. The participants clearly identified health professionals as the target group by the pictures on the home page. However they found the use of phones and computers as tools to access research as less familiar in their workplace. "*The pictures clearly indicate that this web site is for health professionals. It also states so on the home page."*

Another user commented: *"I don't associate myself with the word clinician. I think health professional is more suitable."* The distinction between academia and hands-on health professionals was pointed out by three users, two were new to EBP and one was experienced. All three expressed that the web site was developed by people with an academic background rather than health professionals with recent hands-on experience. One remarked: *"It is evident that the developers have moved on from being hands-on to doing research. It is crucial to stay close to the clinical reality to be able to make a product that is really useful."* Not being able to identify with the content in the online course could lead to feeling alienated or discouraged. One user new to EBP made this comment: *"The feeling I get when I am using this website is that I am stupid because I don't know these things already... and it is not a good feeling."*

### 8.1.9 Understandable

Another facet that is closely related to whether something is familiar is if the users understand the content presented in the course[3]. Related to understanding the online course presented two types of obstacles for the users, 1: Unexplained or confusing EBP jargon and 2: Foreign language.

[3] How people understand information is a topic too broad for this thesis. For example to understand something may be to recognise a text as a specific language, but you may still not be able to actually understand the meaning of the words.

1: Some of the videos contained typical EBP phrases that were not explained: *"Suddenly she talks about PICO, what on earth is that? I've never heard of it! It is annoying when words are used as if they were familiar to everyone when though they are not."* The names of the tabs are not self explanatory: *"Formulating a searchable question* (spørsmålsformulering) ... *I think this is like frequent asked questions."* Some names were familiar, but created the wrong expectations: *"Searching for literature* (litteratursøk) *gives the impression that I can search databases from this web site. If I can't do so, I have no interest in being on this web site."*

2: The use of foreign languages like English or Swedish can cause difficulties in understanding the content. Norwegian language was preferred: "*English language makes it harder to understand and grasp the content as it requires a lot of concentration."*

## 8.2 Is the online course a tool that could enhance research utilization in clinical practice?

All participants were asked about their RU in the background questionnaire. They were not asked for overall use, but some participants indicated use of more than one type.

**Table I**: Self reported research utilization among participants[4]

| | Direct use | Indirect use | Persuasive use |
|---|---|---|---|
| The type of RU I use the most[5] | 2 | 2 | 4 |
| The type of RU I find hardest[6] | 6 | | 3 |

They were also asked to indicate on a visual analogue scale (VAS)[7] how difficult or easy they found RU. Unfortunately, due to the participants being able to answer directly into the background questionnaire, the line for indication was altered on some of the responses. This made it impossible to use the VAS as intended, but all participants indicated on the right side of the scale, demonstrating they found RU difficult.

[4]One participant did not answer any of these questions.
[5]Another participant gave two answers to this question. A third participant did not answer this question.
[6]A fourth participant gave two answers to this question.
[7]A 10 cm straight line used to measure subjective experiences. The ends represent the extreme values of a phenomenon (Polit & Beck, 2008:417-418).

During the user tests the participants stated they found RU to be complex and depending on a lot of factors: *"I think it mainly promotes indirect use of research. You'll need quite a bit of influence to be able to persuade others and being very clever and structured and have good conditions at work to be able to change practice by direct use of research."*

The participants found the online course to best enhance Indirect RU. They also considered EBP procedures as the best way to enhance Direct RU in their clinical practice. One participant clearly proved this point. Her experience is presented next.

### 8.2.1 An example of how the online course can enhance indirect use of research

Indirect use of research may change the health professional's attitude or knowledge. The following glimpse from one of the user tests shows how the online course can enhance indirect use of research:

One of the participants stated early in the user test that her first impression of the online course was that it was trustworthy and credible. "*I think they are honest about the information presented here. There is no reason why they should present information that is incorrect or otherwise false."*

The first change in this attitude came after some free browsing: *"I must modify my answer to the question about credibility. The question made me think and I am a bit more critical now. In addition here it states that one should critically appraise information. "*

After reading information on the statistical term "significant" the participant made this statement (http://kunnskapsbasertpraksis.no/kritisk-vurdering/formidle-tall/): *"This information states that I cannot fully trust how research results are being presented. This illustration shows this in an interesting way. We surely need to critically appraise what is presented in a research article."*

The final statement showing this change was made when summing up the pros and cons of the online course at the end of the user test: *"A good thing is that it reminds us to make conscious decisions at work. Now I am going to contradict my previous statement that I have no reason not to trust the information being presented to me. Now I am*

*thinking that one have to be critical when searching for answers to one's clinical questions."*

## 9.0 Discussion of findings

First I discuss how my theoretical understanding of user experience has influenced the findings of this study. The new facets of user experience will then be looked at in the light of different theoretical frameworks. The end of this chapter focuses on how this study's findings can be applied in development of the online course and the need for further research.

### 9.1 Findings in the light of Hassenzahl & Tractinsky's and Morville's understanding of user experience

The findings generated from the analysis are influenced by Hassenzahl and Tractinsky's definition of user experience (2006:95). They claim the user experience is formed by three factors: The user's internal state, characteristics of the designed system and the context where interaction occurs (ibid).

Morville acknowledge these three factors as the cornerstones of Information Architecture (2004), and his User Experience Honeycomb evolved from this understanding. However, in this study the findings fitting Morville's facets of user experience mainly represent characteristics of the online course. One of the challenges I found with my first set of uncoded information was that they represented a different viewpoint. Eventually it became clear to me that they mainly originated from the user's internal state. This discovery led to the development of the two new facets, Familiarity and Understandable. Despite this variation, I am not questioning Morville's focus on the user in the original facets. My stronger separation between these two factors may be a consequence of my novice level of knowledge of user experience. Despite our vast differences in knowledge of user experience, we agree that the different facets of user experience are closely connected. Findings could fit into more than one facet, and there is room for changes in the original version (Morville, 2004)[8].

[8] I have chosen not to make a new version of the Honeycomb to illustrate my findings. The focus of this study was to give a description of the user experience of an online course in EBP, and not developing a new theoretical framework.

The third factor of user experience is the context. As discussed earlier under limitations of this study, the laboratory setting is the context of this exploration of user experiences. Still, within this somewhat controlled setting, there are factors that may have influenced the participant's reactions and responses. As an example words used in the test guide or emphasised by the moderator may have served as "a lead" for the participants' answers. The online course itself also represents an influencing factor: At the last part of the user tests the participants were asked to sum up three characteristics they liked about the online course. One participant paused for a while before she started stating she liked the consistent use of layout on tables throughout the online course. In front of her she had a screen showing two tables.

Another example shows the importance of first impression of the online course and how it influences the focus of the rest of the user test: Early in the user tests the participants were asked to browse freely what they found of interest on the online course. Most participants browsed the tabs chronologically, and stopped after flicking through two or three tabs. One participant (new to EBP) did not browse the tabs chronologically. Quite early she caught interest in a video lecture showing an example of how EBP could be used in clinical practice called "By the bedside" (Senter for kunnskapsbasert praksis & Nasjonalt kunnskapssenter for helsetjenesten, 2011b). She completed this video and throughout the rest of the user test she related the information presented in the online course to her own clinical practice.

## 9.2 New facets in the light of other excising user experience framework

As part of theory triangulation of new findings I compared my two new facets, Familiar and Understandable, to Rosenbaum's and Nielsen's user experience framework. This comparison showed both similarities and differences.

### 9.2.1 Rosenbaum's framework for user experience of summarised evidence

Rosenbaum added two facets to the Honeycomb model: Understandability and Affiliation. Her facet Understandability and my facet Understandable both emphasise the importance of comprehending the information being presented, the content. She also includes recognition as part of her facet Understandability (2010:110). I have on the other hand put recognition as part of my facet of Familiar. This facet also covers aspects of the online course that users can identify with. In Rosenbaum's framework aspects of identification were included in the facet Affiliation (2010:110-111). While her findings

mainly represented a negative identification or alienation, my findings represented both positive and negative aspects. When renaming my new facets Familiar was considered to cover both sides of identification as well as recognition.

Both the Cochrane library study and this study identified facets of user experience that are not explicit enough in the original Honeycomb. Despite the different names given to cover these facets, their essence is quite similar. This might indicate important factors to consider when developing new or improving existing EBP tools. New studies, like a Canadian study on Developing and user-testing Decision boxes to facilitate shared decision making in primary care (Giguere et al., 2011), will show if these findings are consistent. The answer to whether these facets only relate to user experience of tools for EBP is beyond the scoop of this thesis. This could be a question for further investigation.

In addition to adding two new facets Rosenbaum removed one; Value (2010:111). I kept this original facet as I had finding that illustrated how the online course could be of value both to the owners and the users. I also categorised all finding related to RU under this facet as these showed whether or to what extent the online course advanced its mission. Rosenbaum also added the dimension of use over time to her framework. Due to the research design of this study, the user experience explored is only limited to the time the user test took place. This study's findings are therefore not suitable to discuss in relation to use over time. If more studies are conducted on this online course, they should include the dimension of time, e.g. conduct one user test at participants' first encounter and then a second after some weeks of regular use.

### 9.2.2 Nielsen's framework of usability

Nielsen's framework describes usability and its five components (Nielsen, 2003). Generally I think this concept focuses on the characteristics of the designed tool, rather than the user's internal state. Despite this I find similarities with some of these components and my new facets of user experience, e.g. both Memorability and Learnability may align with the parts of Familiar that refers to recognising. Learnability and Understandable have also similarities. Still the most interesting part of Nielsen's framework in relation to this study is the connection between utility and usability. This is a factor I find more clearly expressed here compared to Morville's and Rosenbaum's frameworks. Exploring utility may not only lead to a more useful tool (Nielsen, 2003),

but also give valuable insight to the user's needs and expectations. This could make it easier to design a tool the users can identify with.

## 9.3 Where to go from here?

The principal findings of this study are presented and discussed in the article "*Tools to enhance Evidence Based Practice: Important factors for developers to consider - A qualitative descriptive study*". In this part I will discuss additional ideas and factors the owners can consider in further development of the online course. This will particularly be related to the question of the nature of the online course and its aim to enhance RU.

### 9.3.1 The nature of www.kunnskapsbasertpraksis.no: Online course or information web site?

Eight out of nine participants would describe www.kunnskapsbasertpraksis.no as an information web site rather than an online course. Based on JISC's definition of e-learning (2011), one can therefore raise the question: Does the online course come across as a learning environment for the users? To answer this question is beyond the scoop of this thesis. This study, due to its research design and lack of support from learning theories, does not provide sound data to draw a conclusion on this matter. Further research should therefore be carried out focusing on the learning outcome of the online course.

How should the owners respond to the feedback from the participants regarding the nature of the online course? This study cannot provide a clear recommendation of what direction the online course should take in further development. However there are findings from this study that can be worth keeping in mind when considering the options, such as the factors presented in the article.

The following example shows how different stakeholders' views can affect the further development of the online course. After five user tests were completed, we made some changes to the test guide. The first five participants had stated they thought the online course came across more as an information web site. The last four participants were asked for their reactions if the online course required signing in and they would receive a certificate after completion. The idea was that these changes could strengthen the appearance as an online course. None of the participants found this beneficial or adding value to them as users. On the contrary, this would have made it less likely for them to use the online course. They preferred the accessibility to remain as present.

If the same question was asked to another group of stakeholders, for instance leaders in a hospital that was to implement EBP, they could value formal accreditation as proof for facilitating EBP knowledge to their employees. This was also pointed out by one of the participants: *"I like that it is so informal, it suits me and my needs. However, if I as part of my role as clinical lead was to make my colleagues take it I would have needed a sort of proof of completion, a certificate or similar."*

This example shows how preferences will differ among various stakeholders and in different settings of use. The owners should therefore consider identifying the different groups of stakeholders and consulting them in their further development of the online course.

### 9.3.2 Ideas on how to change the online course to better enhance Research Utilization

The aim of the online course is to teach users how to retrieve, critically appraise and use research in clinical decision making (Senter for kunnskapsbasert praksis & Nasjonalt kunnskapssenter for helsetjenesten, 2011a). Connecting this aim to the three ways of RU, participants found the online course to mainly promote Indirect Use of research. As the participants pointed out all three ways of RU are valuable, and they are also closely connected. By improving the factors pointed out in the report to the developers, the user experience of the online course might improve and this could enhance use of research. Here I will focus only on the most common advice given by the participants.

All participants commented on the length of the online course. This may reflect our cultural and historical setting. By full access to a vast amount of information on the Internet, we can all experience "information overload" (Hölscher & Strube, 2000:337). To enhance RU the most common advice was to make a shorter version of the online course as introduction to EBP, and have another path for those interested in more in-depth knowledge. The award winning web site Learnhigher (2010)[9], is an example of how the users can be guided by different paths through the web site according to their needs.

[9] This tool also has a clear direction of use: http://www.learnhigher.ac.uk/groupwork/navigation.php. Cf. discussion in article.


**Figure 9**: An example of how different users can be guided through a web site according to their needs. (Found at: http://www.learnhigher.ac.uk/ ).

One of the original research questions (question 5) was: "Can or should the content of the online course be structured according to the different ways of research utilization? ". I have too little findings that directly correspond to this research question. Therefore no conclusion will be drawn. However the impression from the user tests was that the different ways of RU was not well known among the participants. If this reflects health professionals in Norway, structuring the course according to the different ways of RU is not a good idea as this unfamiliar concept could confuse the users. It would probably be more beneficial to guide users according to their previous level of knowledge of EBP,e.g. these two groups: "I am new to EBP and would like a 15 minutes introduction to the concept" or "I know the basics of EBP and need more in-depth information to be able to implement EBP in my clinical practice". A more tailored version for specific tasks for some health professionals could also be considered, e.g. those with responsibility for quality improvements or in house training.

As for other types of RU the participants highlighted policies and procedures as a way to apply direct use of research in their clinical practice. This is in line with a national strategy for development of clinical procedures (Avdeling for kunnskapsbasert praksis i Kunnskapssenteret & Helsebiblioteket, 2012). The online course could be used to facilitate learning of how to make and implement EBP procedures. Following the idea

of different paths through the online course, two groups could be “My workplace has committed to following EBP procedures. I need to know how this affects my work and how I can contribute to achieving this goal” and “I am going to develop an EBP procedure”.

### 9.3.3 Need for further research or evaluation of the online course

In addition to the needs for further research already mentioned, these elements should be paid closer attention to in further evaluation of this particular online course.

Further evaluation of the online course should focus on the content and presentation of the last two steps of the EBP circle as these were less explored by the participants of this study. New user tests with participants being teachers or students could also be carried out. This would show differences and similarities among the online course’s three main user groups.

The report of specific findings could lead to changes to the online course. Both Nielsen (2003) and Rubin & Chisnell (2008) recommend usability tests to be carried out as part of the development process and not only after changes are being launched. In this process participatory design by users representing each group should also be considered. This could have an element of evaluation and might therefore replace some of the user tests.

## 10. Conclusion

This Master’s Thesis has described the user experience of the online course www.kunnskapsbasertpraksis.no. The main research question was: *“How do health professionals in Norway experience the online course www.kunnskapsbasertpraksis.no when exploring it in a laboratory setting?”* The participants liked the online course and found it quite easy to use. They appreciated the accessibility and the mix of written information and video lectures. The participants considered the online course to be fairly useful, however not in their clinical practice. The participants found the online course to mainly promote indirect use of research in clinical practice. They stated they were not likely to use the course unless they were studying or it was mandatory at their workplace. They also questioned the nature of the online course and would rather describe it as an information web site.

The user experience differed between the two groups. The participants who were new to EBP found the online course overwhelming, and both groups agreed it was too long as an introduction to EBP. Those with prior knowledge of EBP were more positive to the online course, and used their knowledge when navigating on the web site.

Findings from this study highlight the importance of the user's internal state and how this influences the user experience. Involving users in the design process is one way to make sure a tool such as this is more in line with the user's needs and expectations. In addition developers should take into account the level of knowledge of the main target group of users and the desired outcome of use as these two factors will influence on the content and the way it is presented. Different paths for different groups of users should be considered.

Further research related to tools developed to enhance research utilization among clinicians should continue to focus on all aspects of user experience, rather than usability alone. The user experience is likely to change as the users get more familiar with the tool. Further studies related to this particular online course should ideally incorporate this perspective, as well as being tested in a more naturalistic environment.

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# Tools to enhance Evidence Based Practice: Important factors for developers to consider - A qualitative descriptive study.

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The script has been prepared by the candidate alone. However the idea is that it might serve as a first draft with several authors, hence the use of plural pronouns.

# Title page

**Title:**

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## Abstract

*Purpose*: The purpose of this study was to gain knowledge of the user experience of an online course in evidence based practice. The course aims to improve skills for using research in clinical practice. The main research question was: How do health professionals in Norway experience the online course www.kunnskapsbasertpraksis.no when exploring it in a laboratory setting?

*Methods*: Inspired by ideas from usability testing and 'Think-aloud', user tests focusing on the user experience of the online course were conducted for this qualitative descriptive study. Nine Norwegian health professionals (nurses, radiographs, occupational therapists) were recruited to run user tests of 90 minutes. The tests consisted of specific tasks for the participants to solve. While doing so they were asked to express their thoughts and reactions, prompted by a moderator. Two researchers observed the test in real time through the use of Morae software. The participant's comments and actions were analyzed in a template analysis consisting of Morville's Honeycomb framework categories: Usability, Useful, Desirable, Findable, Valuable, Accessible and Credible.

*Findings*: Findings included all template categories. Additional facets -Familiarity and Understandability- were identified. Participants found the online course to be quite easy to use and fairly useful, however not in their clinical practice. The participants found the online course to mainly promote indirect use of research in clinical practice. The online course was considered too overwhelming as an introduction to evidence based practice. They also questioned the nature of the online course and would rather describe it as an information web site.

*Conclusion*: This study, despite being small and only providing a snapshot of the user experience in a laboratory setting, suggests key issues important to consider when developing tools aimed to enhance research utilization in clinical practice: Users should be included throughout the design process. The tool should also have a clear purpose, including main target group and desired learning outcome. This would increase the likelihood that the tool will both be usable and useful.

# Introduction

## EBP and Research Utilization

The evidence-based practice (EBP) movement has over the last decades spread from medicine to other health care education and practices including nursing [1:30]. We understand EBP as described in this definition, based on Sackett [2] and Haynes' [3] works:

> " Evidence-based practice is the integration of best research evidence with clinical expertise and patient values to facilitate clinical decision making. Evidence-based clinical decision making should incorporate considerations of the patient's clinical state, the clinical setting and the clinical circumstances" [4:4].

The concept of EBP has also been developed into a model containing the following six steps: Reflection - Defining a question - Search for evidence - Evaluate the evidence – Apply the findings - Assess the outcome [5].


**Figure 1**: The six steps of Evidence Based Practice.

Illustration taken from: http://www.scribd.com/zaana/d/13124287-Planning-for-success-Reprioritising-repurposing-and-retooling-with-results

Previous research has shown that lack of knowledge about how to access and critically evaluate research is a major obstacle to making evidence-based decisions in clinical settings [6, 7].

A more narrow term related to EBP is Research Utilization (RU). "In RU, the emphasis is on translating empirically derived knowledge into real-world applications" [1:29]. We find this equivalent to integrating the best research in EBP. According to Estabrooks [8] there are different ways of using research: 'Direct use' (instrumental) which leads to changing practice, 'Indirect use' (conceptual) which changes attitudes or knowledge, or' Persuasive use', that is when you use the results to persuade or convince others. These three can also be combined, also known as 'Overall use' [8]. Theory-based interventions have been recommended when promoting the use of research findings among nurses [9]. We chose Estabrooks' categories of RU as our theoretical reference and they influenced both the background questionnaire and the test guide.

Studies of RU have identified barriers for using research [10-12]. Lack of access to research, and lack of knowledge about how critically evaluate and apply research are in the top five list of reasons why research is not used [13]. Lack of time is specified as the number one reason [12, 13]. Nurses' perception of lack of time [14], were explored in a qualitative study, showing that busyness can have both environmental and personal reasons. It may not be the actual lack of time that is the cause, but a lack of mental energy and space to acquire and apply research results in an efficient manner [14]. These findings provided a useful backdrop to our study. A systematic review on RU among nurses had been conducted [15] reporting moderate to high use of research. 'Conceptual' and 'Overall use' were more frequently reported than 'Instrumental' and 'Persuasive use'. However, the authors emphasize that these results might show a too positive picture due to methodological weaknesses like the use of different instruments in the included studies and various definitions and understandings of the concept of RU.

## The online course

The EBP movement reached Norwegian nurses in 2001 [16:188]. Bergen University College established in 2008 Centre for Evidence-based Practice. In September 2008 Centre for Evidence-based Practice and the Norwegian Knowledge Centre for the Health Services (NOKC) launched an online course on EBP: *www.kunnskapsbasertpraksis.no* [17]. This online course is an example of an EBP tool.

The course is free, provides an introduction to the six steps of EBP and aims is to teach users to retrieve, appraise and apply research in clinical decision making [17]. The course consists of video lectures, text modules and assignments, and is aimed towards clinicians, teachers or

students in medicine or health professions [17]. There is no need to sign up and the users can access all pages according to their needs and interests. The online course has not previously been systematically evaluated. Master's students in EBP at Bergen University College were invited to initiate studies related to the online course. The research team in this study consisted of two Master's students and two supervisors.

## User experience

When carrying out user tests of web sites, usability is often the key factor being explored [18, 19]. According to Jakob Nielsen usability is how easy and pleasant features are to use. However; he also points out that usability is not the only important factor when looking at the user experience, there is a relationship between usability, utility and usefulness [20]:

> Usability and utility are equally important and together determine whether something is useful: It matters little that something is easy if it's not what you want. It's also no good if the system can hypothetically do what you want, but you can't make it happen because the user interface is too difficult. To study a design's utility, you can use the same user research methods that improve usability.

We understand user experience as defined by Hassenzahl & Tractinsky [21: 95]:

> User experience is a consequence of a user's internal state (predispositions, expectations, needs, motivation, moods ect.), the characteristics of the designed system (e.g. complexity, purpose, usability, functionality, ect.) and the context (or the environment) within which the interaction occurs (e.g. organizational/social setting, meaningfulness of the activity, voluntariness of use, ect.).

Peter Morville, a U.S. information architect, has developed a framework to illustrate he facets of user experience in relation to web sites [22].

**Table I**: Facets of user experience according to Peter Morville .

- **Useful**: Does the site help the user to reach his or her goal? Does it have practical value?
- **Usable**: Can it be used efficiently and with minimum error?
- **Desirable**: Is the site something the users want?
- **Findable**: Can the users find the site and locate what they are looking for on the site?
- **Accessible:** Will it work for all users, or are there any barriers to gaining access?
- **Credible:** Does the web site and its content come across as trustworthy?
- **Valuable:** Does the web site represent the owners in a favourable way? Does it give advantages for the users? Does it advance the mission?


**Figure 2**: The Honeycomb model by Peter Morville [22]

## Objective

Our main research question was*:* How do health professionals in Norway experience the online course 'kunnskapsbasertpraksis.no' when exploring it in a laboratory setting? We were also interested in how user experiences varied according to different levels of prior knowledge and experience with EBP. Additionally we were interested in whether the participants' user experiences were aligned with the main aim of the online course: did they find the course helpful in supporting RU in their clinical practice?

## Methods

We conducted user tests as data collection for this qualitative descriptive study. Our protocol was informed by the methodology of usability testing and 'Think-aloud' [18, 19], but we aimed at capturing a broader perspective of the user experience than usability alone. Polit & Beck [1: 237] use the term Qualitative Description (QD) to cover various qualitative studies that do not fit into common qualitative methodologies or have a formal name. Sandelowski states: [25:334]: "Qualitative descriptive studies have as their goal a comprehensive summary of events in the everyday terms of those events.... Qualitative descriptive study is the method of choice when straight descriptions of phenomena are desired".

As part of the preparation of the study we conducted a pilot test with two participants, one new to EBP and one with years of experience. These were recruited through the researchers' personal and professional network. As only minor adjustments were made to the test guide, we included the data from the pilot test. This decision was made before the main data collection took place.

### Participants

Participants were recruited using snowball method [1:354-355]. In addition to working as a health professional, we had two inclusion criteria for all participants: Be literate in Norwegian and use a computer daily at work. These criteria excluded bias due to language and computer literacy. People being employed at the Centre for Evidence-based Practice or NOKC were not considered to be suitable participants due to possible loyalty conflicts.

65 invites were e-mailed to the participants in the pilot test, former students of EBP and the Norwegian network of EBP. All 65 had previously consented to be contacted by the researchers. They were also encouraged to distribute the invitation to their colleagues.

Eleven persons responded positively and were sent an information video describing the user test in addition to a background questionnaire. Availability on the test dates and previous level of knowledge of EBP were the decisive for participation. We scheduled test sessions with eight participants, and had two participants as backups if someone did not turn up or became ill. During the test days one participant had to cancel at short notice, and one participant and one stand-in had to cancel due to illness. After completing seven test sessions, the research

team concluded that we had achieved reasonable saturation, as no new topics had emerged during the past two sessions [1:70-71].

Including data collection from the pilot test, the sample consists of nine participants all together. These included nurses, radiographer or occupational therapist. Of the nine women included, eight had undertaken further education after their bachelor degree. Other characteristics of the participants are found in table II. Due to the small number of participants, we were worried that they might be recognisable even when fictive names or numbers. However quotes from all participants are included in the presentations of findings.

**Table II**: Characteristics of participants.

| Age | Gender | Experience with EBP | Experience with online course |
|---|---|---|---|
| 30-39 | F | Has completed a course on EBP of 15 ECTS | Has visited the online course a couple of times |
| 50-59 | F | New to EBP | New to the online course |
| 50-59 | F | New to EBP | New to the online course |
| 20-29 | F | New to EBP | New to the online course |
| 20-29 | F | Has completed a course on EBP of 15 ECTS | Has run through most of the online course |
| 30-39 | F | Has completed a course on EBP of 15 ECTS | Has visited the online course a couple of times |
| 50-59 | F | Has completed a course on EBP of 15 ECTS | Has run through the online course, parts of the course twice |
| 60-69 | F | Has years of experience working with EBP | Has not visited the online course herself, but used it when training others |
| 30-39 | F | New to EBP | New to the online course |

All participants were given a voucher of 500 NOK each as a gratitude for their time and effort. The costs were covered by NOKC. The study was approved by the Privacy Ombudsman for research (Personvernombudet) at the Norwegian Social Science Services (NSD).

## Data collection

The data collection was based on voluntary, informed attendance of the participants, also known as informed consent [1: 755]. The user tests were conducted in Oslo, at NOKC's

office. We used Morae usability test software, version 3.1.1[26], for audio and video recordings of the user tests.

Each test lasted about 90 minutes and was performed individually. During the test the participants were asked to perform various tasks using the online course. The test guide were inspired by the seven facets of Morville's Honeycomb [22]. While solving the tasks the participants were encouraged by a moderator to express their thoughts, reactions and feeling, also known as thinking aloud [19:204]. Towards the end of the test the participants were asked to sum up their experiences. Two observers followed each session in real time streaming from Morae. One focused on the actions and one on the comments from the participant. Transcripts were made of both actions and comments from each participant.

Changes were made to the test guide after completion of five tests, due to high level of consistency on some of the participant's replies. Nielsen [27] argues that 85 % of usability problems will be detected after five user tests. These changes are therefore not likely to interfere with the validity of the findings, and it can be argued that we were able to explore a richer range of issues through this test guide alteration [28:129].

## Analysis

The research team gathered after each test to note down our initial thoughts and ideas. These were revisited during the last phase of the analysis process. We chose to do a template analysis based on Sandelowsky's recommendations for QD [25:338]:

> Qualitative content analysis is the analysis strategy of choice in qualitative descriptive studies.(...) Although researchers might also begin the qualitative content analysis process with pre-existing coding systems, these systems are always modified in the course of analysis, or may even be wholly discarded in favour of a new system, to ensure the best fit to the data. Miller and Crabtree (1992, p. 18) described this approach to analysis as the "template analysis style.

A template analysis style will provide concrete categories which seem to match this study's descriptive research aim [1:510]. We used Morville's honeycomb model for user experiences of web sites as the pre-set categories for the template analysis. The coding was done by one

researcher; however the two other members of the research team provided peer-review on the initial findings. We worked together to find a suitable description to findings that did not march Morville's seven facets of user experience. The main findings were presented to the participants by e-mail and eight out of nine replied, stating they recognised the findings.

The findings were rated from 1-3 according to their severity. 1: Indicates a minor or cosmetic problem for example the participant did not like the colours. 2: A clear hindrance that causes confusion or frustration for the participant. Errors are being made, and second attempts were needed to complete the task. 3: The participant is not able to complete the task and gives up, or needs assistance. The findings were also rated as 3 if a participant stated she would have stopped using the online course if she was outside the laboratory setting.

## Findings

Usability tests mainly generate specific findings related to the web site being tested [19]. As our data collection was influenced by ideas and principals from usability testing, the findings in this study were specific to the online course. This article emphasizes the findings which are transferable to other EBP tools. The principal findings presented here correlate to the specific findings with most serious consequences of use (severity rating 2 or 3).

### Facets of user experience

Findings related to all of Morville's facets of user experience were identified. In addition we identified two additional facets of the user experience: Familiar and Understandable. A glimpse of findings is presented in table III.

**Table III**: A glimpse of findings related to facets of User Experience.

| | Facets | Illustrating statement |
|---|---|---|
| **Original Morville facets** | **Useful**: When asked how and when they would use it | *"I would use it to repeat what I learned during my study."* |
| | **Useable**: Whether the users can easily use it. | *"I am very uncertain if this is the start page or not. It feels like I am in the middle of something... Where shall I start?"* |
| | **Desirable**: What the users appreciated or liked. | *"The use of grey and blue colours makes it look clean and professional."* |
| | **Findable**: Whether the users can navigate and locate what they are looking for. | *"I would have expected to be able to click on the circle in this illustration to find more information on how to critically appraise literature."*<br><br>*"What I remember very well from the first time I used this web site was that I found it so hard to find. I had heard about it during my studies so I looked for links from BUC and The Norwegian Electronic Health Library, but I did not find it immediately. That was really frustrating."* |
| | **Accessible**: Whether all could use it. | *"One good thing is the accessibility. You can access this web site at any time from any computer, whenever you like."* |
| | **Credible**: Can the users rely on the information presented? | ***"****It seems up to date and trustworthy. The first impression of the web site is that it looks professional."* |
| | **Valuable**: When asked if they would recommend it to others or have a more formal entry and diploma. | *"I would have recommended it to a college who are starting on her Master's degree."*<br><br>*"I would not have used it if it required signing in."* |
| **New facets** | **Familiar:** Can the user identify with or recognize the content? | *"It is evident that the developers have moved on from being hands-on to doing research. It is crucial to stay close to the clinical reality to be able to make a product that is really useful."*<br><br>*"The feeling I get when I am using this website is that I am stupid because I don't know these things already... and it is not a good feeling."* |
| | **Understandable:** Is the content clear and comprehensive to the user? | *"Suddenly she talks about PICO, what on earth is that? I've never heard of it! It is annoying when words are used as if they were familiar to everyone when though they are not."*<br><br>*"English language makes it harder to understand and grasp the content as it requires a lot of concentration."*(Referring to a video lecture in English). |

## Differences among the two groups

We wanted to see how previous knowledge of EBP influenced the user experience and found some differences among the two groups of participants.

The participants who were new to EBP were more reluctant to use the online course at their work place, but considered it useful if they were to start studying. One stated: *"I doubt myself or some of my nursing colleagues would have used it at work. When doing a Masters degree maybe?"* This group used the search function more than the participants with previous knowledge of EBP. They experienced information overload, but were able to relate and use previous experiences with web sites or e-learning to understand the layout of the course.

Those with previous knowledge of EBP clearly used their knowledge when navigating. They were also generally more positive to the online course. They felt less overwhelmed by the amount of information presented, but they also found the course to be too in- depth as an introduction. Still they did not feel all their needs were being met by the online course. One stated:*"It is a good thing to use it to recap what I have learned during my study, but there is nothing new presented here. So I wonder; what's the next step? Where can I go from here, besides recommended literature? "*

## Three findings supported by both groups of participants

After the template analysis and defining new facets, three major findings stood out. These findings were supported by both groups of participants.

1) The online course was not considered useful in a clinical setting: *"In our clinical reality, we need to quickly find the answers to our questions. We have hardly time to search for literature ourselves, and if I find an article I will need a handy, easy-to-access glossary so I can understand typical statistic terms like p-value. The glossary solution in the online course is too time consuming."*
   *"Clinicians are more simple minded than researchers thinks. They seem to forget that we work under heavy time pressure, so if we search for research but find it hard to obtain, we easily give up! It is important that the academics keep in touch with our needs by asking us – I need a good glossary with short definitions to help med read and understand a research article."*
   Despite these comments on the online course being time consuming and too academic, the participants showed their appreciation and commented on other areas of use than during

their working hours: *"At work I would not have time to read all this, I would have just left and gone back to work. You need to have time and a quiet place to be able to grasp all this...I have not used the online course after finishing my studies, I simply don't have time at work. However, I think it is a good tool to recap knowledge, and appreciate that it exists."*
*"I like the online course, but I can't see myself being able to use it at work, and I must admit I would probably not use it in my spare time either. I would have taken the course only if it was part of my mandatory training."*

2) The online course does not have a layout and features that fit the participant's expectations of an online course. Eight out of nine participants would rather describe it as an information web site. Four participants made comments similar to this one: *"If I were to take an online course, I would expect to hit a start button somewhere. But here it looks like I can just choose the tab I am interested in, and not have to do them in chronological order or complete the whole course. There is nothing that indicated this being the home page. A direction of use could have been helpful."* The participants did not consider the online course as a tool for learning, but a tool to access for references. This was, however valued and considered advantageous:
*"I would not have taken the entire course to get a diploma. I would prefer to use it to get information on EBP and access it whenever I had a question."*

3) The online course mainly promotes 'Indirect use' of research. *"I think the online course may promote indirect use of research in a clinical setting, but I would not have taken the entire course."* The participants were asked for advice on how to change the online course to enhance RU. The most common advice was to make a shorter version of the online course as an introduction, and have another version for those interested in more in-depth knowledge. The participants also pointed out that RU is complex and depends on a lot of factors: *"I think it mainly promotes indirect use of research. You'll need quite a bit of influence to be able to persuade others, and be very clever and structured and have good conditions at work to be able to change practice by direct use of research."*

## Discussion

Our main research question was*:* How do health professionals in Norway experience the online course 'kunnskapsbasertpraksis.no' when exploring it in a laboratory setting? The

participants found the online course to be quite easy to use and fairly useful, however not applicable in their clinical practice. They found the online course to mainly promote indirect use of research in clinical practice. The course was considered too overwhelming as an introduction to EBP. They questioned the nature of the online course and would rather describe it as an information web site. These principal findings point at important factors worth considering when developing EBP tools for clinical practice.

## Limitations of the study

The main limitation is the laboratory setting. We were only able to look at the interaction between the user and the online course, leaving the natural setting unexplored. As pointed out in other studies using the same method [29, 30], it is likely that the users would be more frustrated in a more naturalistic environment like their workplace where interruptions and distractions easily occur. Another weakness is the limited time period of user experience. A user test is a good method to catch the users first impressions of a web site [19] which in its self is important. However research on technical devices like iPhone has shown that the user experience will change as the user gets more acquainted with the tool [31]. It is therefore likely that the findings presented here would have changed if the same participants took part in a second user test after using the online course for some time. Previous acquaintance with the online course and EBP can explain some of the differences between the two groups of participants.

The number of participants is small and all were women. The latter reflects the reality that the majority of health professionals in Norway are female. A larger sample including both sexes might have provided a better foundation for understanding the user experience. We also focused on one of the three different groups the online course is aimed at, clinicians. Using students or teachers as participants would possibly affect or change the findings.

The user tests were performed at NOKC offices. Their logo is also on the home page of the online course. They also paid for the vouchers for the participants, however this was not known or stated when handing them out. The close connection between one of the developers and the place of data collection may have been influencing the participant's attitudes or answers in a favourable direction. However, we have no clear indications that this actually happened. Besides, the researchers conducting the user tests were not involved in the development of the online course.

## Strengths of the study

Each user test provided a large amount of data. By using video recordings we were able to compare comments with non-verbal reactions and actions. The participants were both experienced and novices to EBP, giving a mixture of user experiences, approaches and thoughts. In Qualitative description the researcher stays close to the data and has less of an interpretive aspect than other qualitative methodologies [25:338-339]. It was easy to find illustrating quotes from more than one participant on the findings.

Despite the specificity of findings from user testing a web site, we were able to distract some factors worth considering by other developers of EBP tools: Increased user involvement in the design process and a clear aim of the tool.

## New facets highlights the importance of user involvement in the design process

Depending on one's understanding of user experience, findings could be subject to different facets, e.g. a user's expectations regarding layout and features on a web site can be categorized as part of usability [20], or one could describe these expectations as part of the user's internal state [21]. In this study we have chosen to separate facets of user experience originating from the online course and the user. This lead to the development of the two new facets: Familiarity and Understanding. These illustrate the importance of the user's internal state and how this influence on the user experience, and as a consequence whether a product is found to be useful or not. Research on 'Technology Acceptance Model' has shown that perceived usefulness is of greater importance than perceived ease of use [32]. It is therefore of vital importance for developers to include the users' perspective. One way of doing this is by involving users in the design process. This could lead to better utility and usability which according to Nielsen would make it a useful tool [20].

## A tool with a defined purpose, main target group and level of learning outcome

As well as matching the user's expectations of a tool, developers should have a clearer idea of the purpose of the tool. A clear purpose will define a main target group and expected learning outcome. This would influence both the content and its presentation.

Literature describes steps of knowledge from novices to experts and masters according to the exposure to a topic or domain [36:22]. According to Patel et al.,[37] we build on our existing

knowledge when we acquire new knowledge. Experts stand out compared to novices by the way they see more clearly patterns in information and have a greater depth of understanding. They understand more easily when the knowledge can be used and how to use it. They also use less effort when applying the knowledge [36, 38]. This was manifested during the user tests as the group of participants with previous knowledge of EBP hardly ever used the search function. They rather clicked on familiar terms that they thought would contain the information they were looking for.

Due to these differences among novices and experts, developers should have a clear idea of which group is their target users. Having a clear target group will influence how the content is presented. If a tool is designed for novices it should contain simple language, self-explanatory presentation of numbers and no use of abbreviations [39]. Definitions and explanations should also be added. Due to difficulties of finding patterns in information, novices would benefit from a consistent layout and diverse information being marked differently [39]. Participants new to EBP found the online course to be overwhelming. Measures should therefore be taken to adjust the content and its presentation to better facilitate novices in EBP.

It should also be clear what level of knowledge of EBP the tool is aiming to provide. During the 2003 Conference of Evidence-Based Health Care Teachers and Developers ("Signposting the future of EBHC"), this statement was made:

> It is a minimum requirement that all practitioners understand the principles of EBP, implement evidence-based policies, and have a critical attitude to their own practice and to evidence... Teachers, commissioners, and those in positions of leadership will require appraisal skills that come with higher training and continued use [40].

Various literatures describe three types of levels regarding EBP. Strauss and colleges give the levels name according to the practitioner; Replicator, User or Doer [41], while Tilson and colleagues [42] differ between Knowledge (fact retention), Skills (performance) and Behaviour (action in practice). The developers of the tool should therefore not only focus on whether the main target group is novices or experts, but also the desired outcome of using the tool. This would form the structure and depth of the content presented.

## Is it really an online course?

The developers' and participants' differing expectation of what an online course entails illustrates the two factors discussed above. The participants expressed that

kunnskapsbasertpraksis.no does not fulfil their idea of an online course. When looking at literature on user experience of e-learning, findings presented in Carroll, Booth, Papaioannou and Sutton's systematic review [33] can explain why. The findings of this study match only three of their five broad themes, and only five of eleven sub-themes.

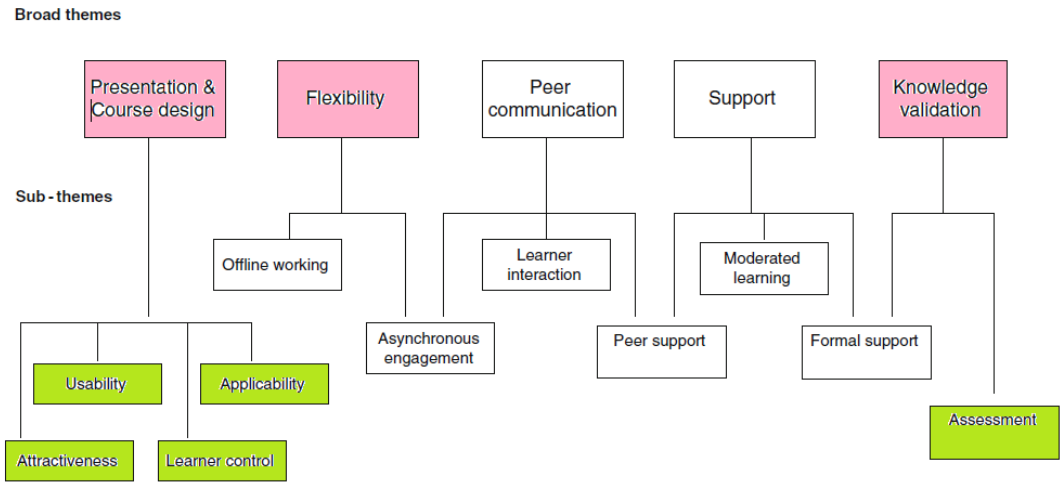


**Figure 3**: Presenting the findings of Carroll, Booth, Papaioannou and Sutton [33]. Matching findings from this study are highlighted.

The compatible themes were presentation and course design, flexibility, and knowledge validation. Our findings related to flexibility were related to working online and not offline. This theme was also closely linked to learner control; the participants found it valuable that they could access the online course at any time, and explore the part of the course they wanted. In relation to knowledge validation the online course has a quiz for users to test their knowledge after each session. This was appreciated by all users, but the usability of the quiz was rated poorly and caused a lot of frustration among the participants. As Wilkinson et al [34] points out, usability and learning experience is closely connected. Related to presentation and course design, the participants were confused by the home page and requested an introduction of use. Krug [35:47] points out : "Instructions are normally a waste of words, and measures should be taken to ensure the home page is self-explanatory". However the participants' wish for instructions must not be understood as poor usability alone, but seen in light of their different expectations to an online course and an ordinary web site.

The non-compatible themes were support and peer communication. Kunnskapsbasertpraksis.no does not have the function of support or communication either by

peers or a tutor. This is a valued feature in online courses [33]. However, only one participant commented that she was missing this element.

These differences can explain why the participants would describe the tool as an information web site rather than an online course. This example illustrates why developers should align with users during the design process, as well as the importance of having a clear aim and letting this influence the content and the way it is presented.

### Suggestions to further research

Further studies should preferably be conducted in a naturalistic setting, e.g. on a work place. The user experience should also be explored over a period of time.

## Conclusion

In this study we explored the user experience of an online course in EBP. This study, despite being small and only providing a snapshot of the user experience in a laboratory setting, suggests key issues important to consider when developing tools aimed to enhance research utilization. The user's internal state has great influence on the user experience. Real users should be involved in development of tools for use in clinical practice. A clear purpose, including the tool's aim and target users, will form its content and the way it is presented. These factors are likely to influence the user experience by improving usability, utility and the user's perception of the usefulness of the tool. This would increase the likelihood of the tool being used in clinical practice.

## Author's contributions

LAS designed the study, recruited participants, carried out user testing, analyzed the data and drafted the manuscript. SR supervised the whole research process including designing the study, user testing and analysis. CEARJ carried out user testing and peer reviewed the analysis. GOH supervised the process and reviewed several versions of the manuscript. All authors read and approved the final manuscript.

## Acknowledgements

The project was partly founded by NOKC and Centre for Evidence-based Practice at Bergen University College. Thanks to Lillebeth Larun, Monica Nortvedt and Gro Jamtvedt for support and interest in the project.

## Statement of conflicts of interest

All of the authors have some relation to the developing institutions of the online course. However none have taken part in the development and design of the online course. LAS and CEARJ are students of the Master's programme of EBP at Bergen University College. GOH works at Centre for Evidence-based Practice at Bergen University College. SR works at NOKC. NOKC paid for the vouchers to the participants.

## Summary table

What is already knows on the topic:

- Numerous studies have been conducted to identify barriers and facilitators of EBP [43-46].
- One barrier often identified is lack of use of research finding in clinical settings. Clinicians find it hard to obtain, understand, translate and use research [6, 7, 43]
- According to Estabrooks [8] there are three ways of using research: Direct use which leads to changing practice. Indirect use which changes attitude or knowledge. Persuasive use, for example when you use the results to persuade or convince others.

What this study adds to our knowledge:

- Key issues to consider when developing a tool to enhance research utilization.

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## APPENDIX I: Bibliography of included studies in literature review on usability studies

The brief of the assignment was to write a literature review on a defined topic related to the proposed Master's Thesis project. The literature review should include 5-8 primary studies. My chosen topic was methodologies used in usability studies.

**Included studies in the literature review:**


Boulos, M.N.K (2006) Map of dermatology: "first-impression" user feedback and agenda for further development. *Health Information and Libraries Journal* 23, side 203-213.

Fagan, J.C. (2006) Usability Testing of a Large, Multidisciplinary Library Database: Basic Search and Visual Search. *Information Technology and libraries*, September, side 140-150.

Levine, J. & Chaparro, B. S. (2007) Usability Study of a Distance Continuing Education Website for Human Service Professionals. *Journal of Technology in Human Services* 25 (4), side 23-39.

Moore, M., Bias, R. G., Prentice, K., Fletcher, R. & Vaughn, T. (2009) Web usability testing with a Hispanic medically underserved population. *Journal of the Medical Library Association* 97 (2), side 114-121.

Rosenbaum, S.E., Glenton, C. & Cracknell, J. (2008) User experience of evidence-based online resources for health professionals: User testing of The Cochrane Library. *Medical Informatics and Decision Making* 8 (34).

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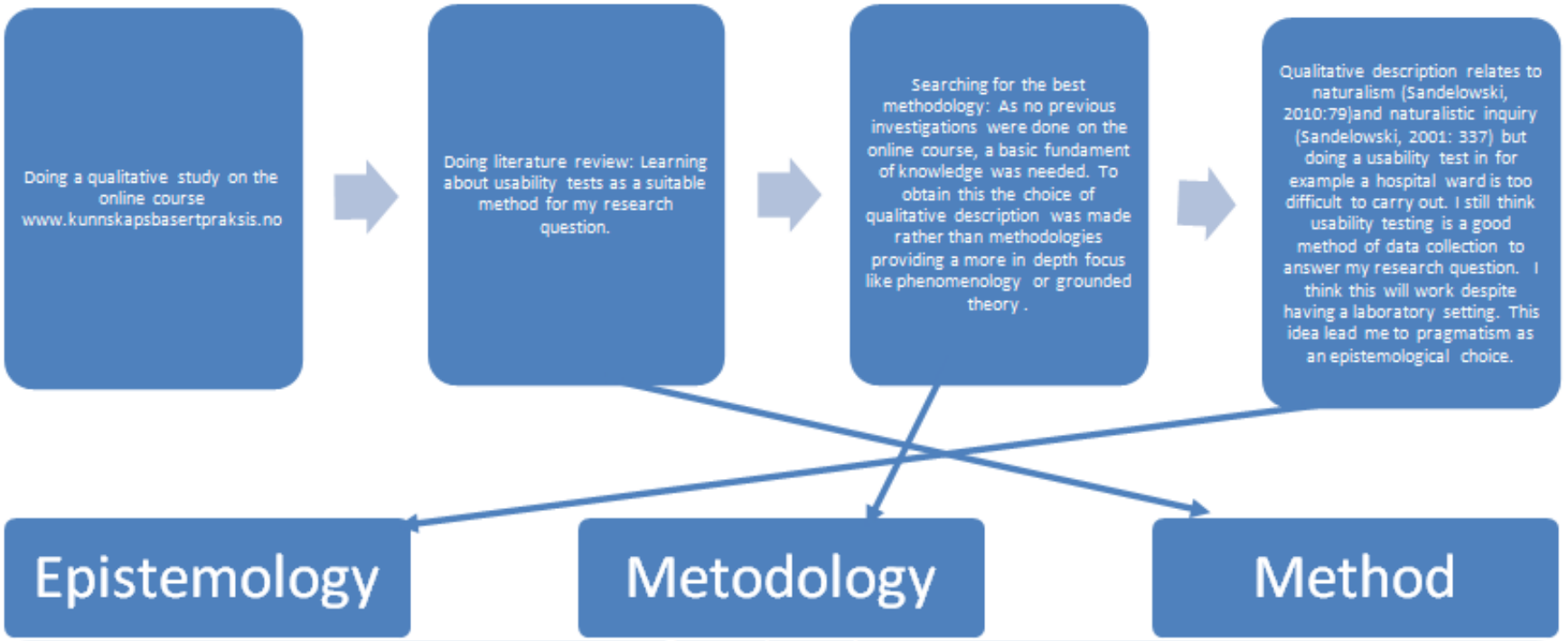


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# APPENDIX III: Approval from Norwegian Social Science Services (NSD)

**Norsk samfunnsvitenskapelig datatjeneste AS**
NORWEGIAN SOCIAL SCIENCE DATA SERVICES

Harald Hårfagres gate 29
N-5007 Bergen
Norway
Tel: +47-55 58 21 17
Fax: +47-55 58 96 50
nsd@nsd.uib.no
www.nsd.uib.no
Org.nr. 985 321 884

Grete Oline Hole
Senter for kunnskapsbasert praksis
Høgskolen i Bergen
Postboks 7030
5020 BERGEN

Vår dato: 06.05.2011 Vår ref: 26952 / 3 / MIS Deres dato: Deres ref:

## KVITTERING PÅ MELDING OM BEHANDLING AV PERSONOPPLYSNINGER

Vi viser til melding om behandling av personopplysninger, mottatt 06.04.2011. All nødvendig informasjon om prosjektet forelå i sin helhet 04.05.2011. Meldingen gjelder prosjektet:

| | |
|---|---|
| *26952* | *Hvordan er brukeropplevelsen av nettkurset kunnskapsbasertpraksis for helsepersonell i Norge?* |
| *Behandlingsansvarlig* | *Høgskolen i Bergen, ved institusjonens øverste leder* |
| *Daglig ansvarlig* | *Grete Oline Hole* |
| *Student* | *Lena Stabell* |

Personvernombudet har vurdert prosjektet og finner at behandlingen av personopplysninger er meldepliktig i henhold til personopplysningsloven § 31. Behandlingen tilfredsstiller kravene i personopplysningsloven.

Personvernombudets vurdering forutsetter at prosjektet gjennomføres i tråd med opplysningene gitt i meldeskjemaet, korrespondanse med ombudet, eventuelle kommentarer samt personopplysningsloven/-helseregisterloven med forskrifter. Behandlingen av personopplysninger kan settes i gang.

Det gjøres oppmerksom på at det skal gis ny melding dersom behandlingen endres i forhold til de opplysninger som ligger til grunn for personvernombudets vurdering. Endringsmeldinger gis via et eget skjema, http://www.nsd.uib.no/personvern/forsk_stud/skjema.html. Det skal også gis melding etter tre år dersom prosjektet fortsatt pågår. Meldinger skal skje skriftlig til ombudet.

Personvernombudet har lagt ut opplysninger om prosjektet i en offentlig database, http://www.nsd.uib.no/personvern/prosjektoversikt.jsp.

Personvernombudet vil ved prosjektets avslutning, 31.12.2012, rette en henvendelse angående status for behandlingen av personopplysninger.

Vennlig hilsen
Bjørn Henrichsen

Marie Strand Schildmann

Kontaktperson: Marie Strand Schildmann tlf: 55 58 31 52
Vedlegg: Prosjektvurdering
Kopi: Lena Stabell, Monrad Mjeldesvei 31, 5161 LAKSEVÅG

## Personvernombudet for forskning

### Prosjektvurdering - Kommentar

Prosjektnr: 26952

Formålet med prosjektet er, ved å gjennomføre en brukertest av nettkurset kunnskapsbasertpraksis.no, å få kunnskap om hvorvidt brukernes erfaringer og oppfattelser om nettkurset kan være med på å stimulere til økt bruk av forskningsresultater i deres praksis.

Utvalget består av helsepersonell som behersker norsk og bruker data daglig i sitt yrke, totalt 14 personer. Forespørsel om deltakelse formidles av ansatt på nettkurset.

Personvernombudet finner informasjonsskriv av 04.05.2011 tilfredsstillende.

Datamaterialet innhentes gjennom tester av nettkurset. Testen gjennomføres ved hjelp av et brukertest-program som registrerer alle bevegelser på skjermen og synkroniserer dette med videoopptak fra webkameraet og lydspor fra mikrofonen. Moderator innleder med et par spørsmål, deretter blir testpersonene bedt om å løse noen oppgaver knyttet til funksjoner og innhold i nettkurset. Selve testsekvensen vil gi informasjon via billedopptak av både ansiktsuttrykk og dataskjermen sammen med lydopptak av uttrykte tanker og reaksjoner.

I tillegg til navn og kontaktinformasjon, samt opplysninger fra brukertesten, vil det innhentes demografiske data (kjønn, alder, utdanning og yrke) og bakgrunnsopplysninger om testpersonene (antall år yrkeserfaring, tidligere kjennskap til kunnskapsbasert praksis, tidligere bruk av nettkurset eller andre nettkurs, motivasjon for bruk av nettkurs, bruk av forskning i praksis og hvordan den brukes).

Lyd og videoopptak av testsekvens (DVD) vil bli lagret i arkivene på Kunnskapssenteret i Oslo hvor testen foregår. Ekstern hardisk blir brukt for å kunne transkribere lydopptakene fra testsituasjonen. Dette vil finne sted i Bergen hvor studenten holder til.

Prosjektslutt er 31.12.2012. Datamaterialet anonymiseres ved at verken direkte eller indirekte personidentifiserende opplysninger fremgår. Koblingsnøkkel, logger og lyd/bildeopptak slettes både hos student, utdanningsinstitusjon og ved Kunnskapssenteret. Indirekte personidentifiserende opplysninger fjernes, omskrives eller grovkategoriseres.

# APPENDIX IV: Participant recruitment information

## Vil du delta i en brukertest av et nettsted for helsepersonell?

Hvis du deltar, får du et gavekort på 500 kroner som takk for hjelpen.

## Hvorfor gjør vi dette?

Vi ønsker å gjennomføre en brukertest av et nettsted som en del av et større arbeid med å videreutvikle nettstedet. Testen vil hjelpe oss å forstå hvordan nettstedet brukes i dag og hvordan det kan bli bedre.

## Hvem leter vi etter?

Vi ser etter helsepersonell som bruker data daglig i jobben, og som behersker norsk. Du kan ha mye eller lite erfaring med kunnskapsbasert praksis.

## Når og hvor?

Vi gjennomfører brukertestene i uke 37 14.-16. september 2011 i Kunnskapssenterets lokaler, Pilestredet Park 7 (gamle Kvinneklinikken). Vi kan avtale en tid enten på dagen eller kvelden. Deltakelse i undersøkelsen er frivillig, og du må signere informert samtykkeerklæring. Hvis du melder deg på, kan du når som helst trekke deg uten å oppgi grunn.

## Hvordan foregår brukertesten?

Testen kjøres med én person av gangen. Du og en moderator vil sitte i et rom og du vil bli stilt spørsmål og bedt om å løse oppgaver knyttet til nettstedet. Mens du gjør dette ber vi deg forteller hva du synes om det du erfarer med nettstedet. Er det enkelt å bruke? Finner du informasjon som er nyttig for deg?

Det tar cirka 1,5 time og det er ingen forberedelser.

Med din tillatelse, tar vi opptak av testen. Vi tar to typer opptak: Ett av skjermen på datamaskinen og ett av deg med et webkamera. I tillegg tar vi opp lyden. Vi har en spesiell programvare som synkroniserer disse opptakene og lagrer det som én fil, slik at når det spilles av etterpå kan vi både se og høre dine bevegelser og dine reaksjoner mens du navigerte rundt. Du blir aldri knyttet med navn til disse opptakene, og de brukes kun for datainnsamling og analyse for en masteroppgave.

All data blir behandlet konfidensielt. Navn og kontaktinformasjon blir aldri koblet til opptakene eller oppbevart sammen. Alle opptakene blir oppbevart på DVD i arkivet til Kunnskapssenteret til prosjektslutt 31.12.12. Deretter blir de slettet.

Som deltager har du rett til å kreve innsyn, retting eller sletting av opptakene når som helst før dette. Du kan også se på det ferdige resultatet av testen ved å ta kontakt med prosjekt-teamet.

## Interessert?

Har du lyst til å delta? Ønsker du mer informasjon?

Send en e-post til Lena Stabell:

lena_stabell@hotmail.com

Merk mailen med "Brukertest". Da sender vi deg mer informasjon og kontakter deg for nærmere avtale. Husk å skrive et telefonnummer hvor vi kan nå deg.

## Kan du ikke delta selv, men kjenner noen som er interessert?

Spre gjerne denne informasjonen. Det er fint hvis du berde som tar kontakt om å oppgi hvordan de fikk kjennskap til denne informasjonen.

Med vennlig hilsen

Lena Stabell,

Mastergradsstudent ved Senter for Kunnskapsbasert praksis, HIB.

## APPENDIX V: Information given to participants on test day and consent form

16.09.2011

**Forespørsel om deltakelse i masterprosjekt.**
I denne testen ønsker vi å se på hvordan ansatte i helsetjenesten bruker nettkurset kunnskapsbasertpraksis.no. Testen vil hjelpe oss å forstå hvordan dette nettstedet brukes i dag og hvordan det kan bli bedre.

Deltakelse i undersøkelsen er frivillig. Du når som helst trekke deg uten å oppgi grunn, nå eller underveis i testen.

Du får et gavekort som takk for at du deltar. Det kan du beholde selv om du skulle ønske å avbryte eller trekke deg fra testen.

**Hvem deltar?**
Vi har invitert personer knyttet til helsetjenesten som behersker norsk og bruker datamaskin i sitt daglige virke. Du kan ha mye eller lite erfaring med å bruke nettkurset, kort eller lang arbeidserfaring, mye eller lite tidligere kjennskap til kunnskapsbasert praksis.

**Hvordan foregår testen?**
Det er viktig å være klar over at vi tester nettstedet og ikke deg som deltar. Nettstedstestingen foregår ved at du går gjennom nettstedet sammen med oss og forteller hva du synes om det. Er det enkelt å bruke? Finner du nyttig informasjon? Vi vil stille deg noen enkle spørsmål om yrket ditt og om eller hvordan du bruker forskning på jobb. Deretter vil vi be deg om å åpne broweseren og gi deg noen enkle oppgaver. Til slutt vil du få noen tilleggsspørsmål om prosessen.

Det hele tar cirka 1,5 time.

**Hvordan registrerer vi det som skjer i brukertesten?**
En programvare tar opptak av det som skjer på dataskjermen mens du besøker nettstedet. På denne måten får vi dokumentert besøket ditt som et videospor. I tillegg blir det tatt videoopptak av deg med et webkamera. Programvaren syr sammen disse to opptakene, slik at når det spilles av etterpå kan vi både se og høre hvordan du reagerte mens du navigerte rundt.

**Hva skjer med opptakene etterpå?**
Etter testen vil prosjektteamet gå gjennom og analysere opptakene. Vi vil skrive en rapport om testfunnene for de som har publiseringsansvar for nettstedet.

I tillegg blir det tatt notater fra opptakene. Disse blir brukt som datagrunnlaget for et masterprosjekt i Norge.

All data blir behandlet konfidensielt. Navn og kontaktinformasjon blir aldri koblet til opptakene eller oppbevart sammen. Opptaket av testene blir oppbevart på DVD i arkivet til Kunnskapssenteret til prosjektslutt 31.12.12, deretter blir de slettet og tilintetgjort.

Som deltager har du rett til å kreve innsyn, retting eller sletting av opptakene når som helst før dette. Du vil få tilsendt sammendrag av funnene når dataene er ferdig analysert, og bli bedt om å gi en kommentar på dette.

**Er det noe du lurer på?**
Har du noen spørsmål til testleder før vi starter?

Hvis du lurer på noe etterpå kan du sende oss på e-post:

lena_stabell@hotmail.com

sarah.rosenbaum@kunnskapssenteret.no

grete.oline.hole@hib.no

Med vennlig hilsen,

Lena Stabell og Sarah Rosenbaum,

Prosjektansvarlige for gjennomføring av brukertester.

Grete Oline Hole,

Prosjektansvarlig fra Høgskolen i Bergen

**Samtykke**

Jeg har mottatt skriftlig og muntlig informasjon og er villig til å delta i studien.

❑ Ja ❑ Nei

Opptakene kan brukes som en del av datagrunnlaget til et masters prosjekt.

❑ Ja ❑ Nei

_____ _____

underskrift dato

_____ _____

testleder/forskerens underskrift dato

## APPENDIX VI: Examples of background for developing the tasks

| **Information from Google Analytics** | **Relation to Kuniavsky's recommendations** | **Researcher's presuppositions** | **Brief outline of task participants were asked to do** |
|---|---|---|---|
| "Qualitative method" is one of the often used search terms that lead users to the online course.<br><br>The page giving detailed information on qualitative methods is the page where most users terminate their visit. | Considered important for the users.<br><br>Often used feature. | The users may terminate their visit on this page for one of these two reasons:<br>They are content with the information provided, or<br>They are disappointed in the information provided and keep searching somewhere else.<br>The video lecture presented on this page is in English. The rest of the video lectures in the online course are in Norwegian or Swedish. Could language barrier be a reason for the termination? I think so. | You want to find out more about qualitative methods. How would you go about finding information on this topic in the course? |
| "p-value "is one of the most common search words in the online course. | The pages describing statistics is one of the newest features of the online course. | Limited understanding of research results may be a reason for poor research utilization. Can the online course be of any help by providing information and definitions that are easily and time efficiently accessed during work? How sensitive is the search engine in the course? E.g. ARR (Absolute Risk Reduction) gives no hits. | Here is an example of how research results are communicated in statistical terms like significance and p-value. Choose one of these concepts, and use the online course to get more information on this statistical term. |
| "Evidence-based practice" is (obviously) the most common search term that leads to the online course. | Considered important for the users.<br><br>Often used feature. | How is the general information on EBP presented? Is the online course suited to give an introduction to EBP to someone unfamiliar to the concept? My impression is that it may be too complicated or overwhelming. | Imagine a colleague asks you what evidence-based practice is, and you feel you cannot answer properly. Can you find some general information here that you can refer her to? |

## APPENDIX VII: Test guide

**TESTGUIDE**

**- Følg bort til testrommet**
**- Vis hvor toalettet er**
**- Gjennomgå informasjonsskriv, spør om det er noen spørsmål?**
**- Underskrift på informert samtykkeskjema**
**- Del ut gavekort og gi infoskriv**
**- Oppmuntre informanten til å stille mobilen på lydløs for å unngå å bli forstyrret**
**- Når du bruker datamaskin trenger du da noen tilrettelegging eller hjelpemidler? Eks større skrift på skjermen eller briller?**

**Testleder – før testen:**

**- Nullstill cookies og history**
**- Legg ned nettleseren**
**- Sjekk at forrige test opptaket er avsluttet og lagret.**

**OPPSTART**

**Jeg vil nå lese følgende informasjon til deg om brukertesten. Grunnen til at jeg leser er at vi ønsker at alle deltakerne skal få nøyaktig samme informasjon.**

**Moderator leser følgende:**

| | |
|---|---|
| utviklet av Kunnskapssenteret og Senter for KBP, HIB.<br><br>- vi har satt i gang for å undersøke brukervennl.<br><br>- vi har ikke laget nettstedet | Nå skal se på et nettkurs som er utviklet av Kunnskapssenteret og Senter for Kunnskapsbasert praksis ved Høgskolen i Bergen.<br><br>Det jobbes med å forbedre nettkurset, og brukertesten som vi skal gjøre i dag er en del av dette.<br><br>Vi har satt i gang et prosjekt for å undersøke hvor brukervennlig nettkurset er. Vi som utfører dette studiet har ikke vært med på å utvikle tjenesten. |
| - 1 av 8 deltagere<br><br>bruk bl.a. dine erfaringer til å avdekke | Du er en av 8 stykker som vi har invitert hit. Vi kommer til å ta erfaringene fra alle testene og finne ut hvor i tjenesten de må jobbe med å lage den mer brukervennlig. |
| - vi sitter her... de andre i et annet rom<br><br>- arbeidsro<br><br>- blir tatt opptak – slik tidl. forklart. ok? | Du og jeg kommer til å sitte her foran skjermen. I et annet rom sitter det to observatører og følger med. De ser også det samme som vi gjør på skjermen.<br><br>De sitter i et annet rom slik at du og jeg får arbeidsro, og de kan prate seg i mellom underveis. Det blir tatt opptak,som blir brukt som datagrunnlag for en masteroppgave.Jeg håper det er greit for deg? |
| 1 time | Dette kommer til å ta ca. 1 time. Jeg kommer til å stille deg |

| | |
|---|---|
| 1) bakgr.spørsmål<br>2) oppgaver<br>3) noen spørsm<br>si ifra om pause<br>- ok? | noen bakgrunnsspørsmål om deg og din bruk av internett. Så skal vi bruke mesteparten av tiden til å se på selve tjenesten. Etterpå kommer jeg til å spørre hvordan du synes det var å bruke tjenesten. Du kan selvfølgelig når som helst si ifra om du trenger en pause eller ønsker å avslutte. Høres dette greit ut? |

**VIKTIG! Trykke "start recording" og sjekk at videoikonet dukker opp på applikasjoner menyen**

**Noen bakgrunnsspørsmål**

| | |
|---|---|
| **A** | **Hva er din yrkesutdanning og stilling i dag?** |
| | |

| | |
|---|---|
| **B** | **Kan jeg spørre hvilket år du er født?** |
| | |
| **C** | **Bruker du datamaskin daglig på jobben?** |
| | |

| | | |
|---|---|---|
| **D** | **Hvor ofte bruker du internett i gjennomsnitt?** | |
| | Daglig | |
| | Opp til 5 dager pr uke | |
| | Én gang pr uke | |
| | Én – to ganger pr måned | |
| | Aldri | |

| | | |
|---|---|---|
| **E** | **I hvilke sammenheng bruker du internett mest?** | |
| | Privat | |
| | Jobb | |
| | Studier | |
| | Annet | |

| | |
|---|---|
| F | **Bortsett fra e-post, hva bruker du internett mest til?** |
| | |

| | | |
|---|---|---|
| | Hvis ikke nevner noe, kan foreslå: | |
| | Nyheter | |
| | Faglig oppdatering | |
| | Helseinformasjon privat | |
| | Bestilling av billetter | |
| | Nettbank | |
| | Spill | |
| | Informasjonsinnhent (tlf nr, kart, gule sider osv.) | |
| | Annet | |

## Testrelevante erfaring

Søking etter informasjon

| | |
|---|---|
| G | **I jobbsammenheng: Hva gjør du når du skal treffe beslutninger eller gi råd og føler at du ikke vet nok til å gi et godt svar?** |
| | |

| | |
|---|---|
| H | **Hvilke kilder går du til når du skal søke etter informasjon?** |
| | |

Informasjonskildene

| | |
|---|---|
| I | **Hva synes du om den informasjonen du har fått fra disse kildene? Kvalitet? stoler på det?** |
| | |

Forhold til Kunnskapsbasert praksis

| | |
|---|---|
| J | **Hva betyr konseptet "kunnskapsbassert praksis" for deg?** |
| M | Hvis informanten svarer litt utdypende på dette spørsmålet kan du stille de neste spørsmålene også:<br>**Hvordan har du fått kjennskap til kunnskapsbasert praksis?**<br>**Hva er din erfaring med å jobbe kunnskapsbasert?** |

| | |
|---|---|
| | **Hva er din mening om konseptet kunnskapsbasert praksis?** |
| | |

Forhold til Kunnskapsbasertpraksis.no

| | |
|---|---|
| **K** | **Har du hørt om nettkurset før?** |
| | |
| | **Har du noen gang besøkt nettstedet før? Hvis ja, anslagsvis hvor mange ganger har du besøkt det?** |
| | |

| | |
|---|---|
| **L** | **Kan du si noe om hva nettkurset er?** |
| | |
| **M** | **Har du tidligere gått igjennom et nettkurs? (Hvis ja): Hvilket nettkurs og hvorfor gjorde du det? Hva var din erfaring med å gjøre det?** |
| | |

**Introduksjon til oppgavene:**

Jeg kommer til å gi deg noen oppgaver som du skal løse ved hjelp av nettkurset. Det vi ser etter, er hvor enkelt eller vanskelig det er å bruke dette nettkurset. Det forteller oss hvor i tjenesten brukervennligheten er god, og hvor den er dårlig.

Erfaringsvis er det slik at de stedene du synes det er vanskelig, er det flere som synes er vanskelig, og da kan det brukes som et utgangspunkt for å forbedre tjenesten. Vi er ute etter både det som fungerer bra og ikke fullt så bra. Vi vil gjerne ha din mening, og dermed finnes ikke noe riktig eller feil svar på noe av det vi spør om. Hvis du synes noe er lett eller vanskelig, tydelig eller forvirrende, hvis du finner ting eller ikke finner ting – vi vil gjerne vite alt dette.

Tenk høyt

Det er flott om du kan tenke høyt underveis. Fortell hva du tenker og gjør. For eksempel:

- Hva du ser på skjermen
- Om det svarer til forventningene dine
- Om du leter etter noe eller finner noe
- Hvorfor du trykker på noe
- Hvis det er ting du ikke forstår kan du for eksempel si ”Jeg vet ikke hva dette er…”

Min rolle som moderator

Min rolle er å gi deg oppgaver og stille deg spørsmål. Men: Siden det er din mening vi er interessert i, kommer jeg til å si minst mulig. Du kan godt stille spørsmål, men det kan hende jeg ikke svarer. Du sier i fra når du synes du er ferdig med en oppgave eller sier ifra at "Nå ville jeg normalt ha gitt opp".

Det kan hende du vil få spørsmål, som ligner på noe du allerede har svart. Ikke la dette forvirre deg, bare svar det du mener en gang til. Når du vil bruke tid til å lese innholdet på en side er det fint hvis du sier det, og gir beskjed når du er ferdig slik at jeg ikke forstyrrer deg.

**Nå kan du åpne Internett.**

**Oppgavene:**

## Oppgave 1: Finne nettkurset fra tom side

Finn websiden

| | |
|---|---|
| 1a | - **Du har hørt fra en kollega at det finnes et nettkurs om kunnskapsbasert praksis. Hvordan vil du gå frem for å finne dette nettkurset?**<br>- **Bare vis oss hvordan du pleier å gjøre noe slikt.** |
| | |

| | |
|---|---|
| M | Hvis testpersonen ikke finner det og til slutt gir opp, kan du gi dem adressen: kunnskapsbasertpraksis.no |

## Oppgave 2: Forståelse av tjenesten basert på forsiden/førsteinntrykk

Forsiden - Førsteinntrykket

| | |
|---|---|
| 2<br>M | **Vi skal nå holde oss på denne siden en stund. Vent litt med å klikke: Hva er førsteinntrykket ditt av dette nettstedet?**<br>(Hvis du får lite svar kan du konkretisere med å spørre hva de mener om layout, farger og bilder.)<br><br>**Hvor lett eller vanskelig oppfattes dette nettstedet å bruke?** |
| | |

| | |
|---|---|
| 3 | **Hvilke type innhold tror du at du kan finne her?** |
| | |

| | |
|---|---|
| 4 | **Tror du at du kan stole på den informasjonen du finner her? Hva får deg til å mene det?** |
| | |

Oppmerksomheten og forventninger

| | |
|---|---|
| 5 | **Hva legger du spontant merke til?**<br>**- noe her som fanger interessen din eller som virker relevant for deg?**<br>**- noe som overrasker deg? Noe du forventer å se som du ikke ser her?** |
| | |

Oversikt, forståelse av strukturen

| | |
|---|---|
| 6 | **Kan du beskrive hovedinnholdet på denne tjenesten, basert på det du ser på forsiden?** |
| | |

Oppfatning av innholdet basert på forsiden

| | |
|---|---|
| 7 | **Tror du det finnes innhold på nettstedet som kan være interessant for deg?** |
| | |

## Oppgave 3 Browse fritt og navigert tilbake til forsiden:

| | |
|---|---|
| 8a<br><br>M | **Utforsk nettstedet basert på det du synes virker interessant og relevant for deg. Bruk den tiden du normalt ville gjort. Husk å fortelle oss hva du ser på, hva du ser etter, hvordan du tenker.**<br><br>(Informanten kan bruke litt tid på denne oppgaven, men avbryt etter 5 minutter hvis ikke det skjer av seg selv.) |
| | |

| | |
|---|---|
| **8b** | **Hvordan vil du komme deg tilbake til forsiden til nettkurset, det vil si det første bildet du fikk opp?** |
| | |

Nå skal jeg gi deg en rekke oppgaver som går ut på å finne forskjellige ting på nettstedet. Husk at det er du som tester nettstedet, ikke det som tester deg. Det er absolutt ingenting du kan gjøre galt. Hvis noe virker forvirrende, eller feilplassert, eller fungerer på en merkelig måte, er det ikke din feil. Husk å snakke høyt hele tiden, og si hva du gjør og tenker.

## Oppgave 4: Finn generell info om kunnskapsbasert praksis

| | |
|---|---|
| **9 a** | **La oss si at en kollega spør deg om hva kunnskapsbasert praksis er, og du synes du ikke kan svare godt nok. Kan du finne noe generell informasjon her som du kan henvise henne til?** |
| | M For eksempel å klikke på kunnskapsbasert praksis fanen |

| | |
|---|---|
| **9 b** | **Åpne en av videosnuttene på denne siden, hør igjennom den og gi din tilbakemelding på denne form for informasjonsformidling. Hvorfor valgte du akkurat denne videosnutten? Hvilke tanker gav den deg om kunnskapsbasert praksis?** |
| | |

## Oppgave 5: Oppbygging og bruk av trinnene i KBP

| | |
|---|---|
| **10 a**<br><br>**M** | **Se litt på innholdsfeltet/fanene, og fortell hva du tror de forskjellige overskriftene betyr.**<br><br>(Eventuelt pek på kunnskapsbasert praksis, spørsmålsformulering, litteratursøk, kritisk vurdere, anvende KBP og evaluere hvis informanten ikke skjønner det) |
| | |

| | |
|---|---|
| 10 b | **Har du hørt om PICO før? Hvis ja: Kan du fortelle litt om hva du vet om det?**<br><br>**PICO kan være et nyttig hjelpemiddel. Se om du kan finne noe informasjon om PICO på nettkurset.** |
| M | Hvis informanten ikke finner det leder du vedkommende til fanen spørsmålsformulering.<br><br>**Åpne øvingsoppgaven. Her har vi fylt ut skjemaet med en tenkt problemstiling fra praksis.** |
| M | Gi eksempel og la informanten få tid til å lese igjennom og evt. stille spørsmål til utfyllingen av skjemaet.<br><br>**Er skjemaet fra øvingsoppgaven noe du tror du ville brukt i en praksisnær situasjon? Hvorfor/hvorfor ikke?**<br><br>**Tenk deg at det er du som har fylt ut skjemaet. Hva er de neste trinnene du ville benytte deg av for å finne en kunnskapsbasert løsning til problemstillingen din?** |
| | |

## Oppgave 6: Test av Quiz

| | |
|---|---|
| 11 | **På samme siden som du nå befinner deg på finnes det en lenke til en quiz hvor du kan teste om du har fått med deg læringsmålene for denne delen av nettkurset.**<br><br>**Vi ønsker nå at du skal begynne å svare på quizen. Du trenger ikke å gjennomføre hele. Vi er IKKE interessert i å teste dine kunnskaper, kun funksjonaliteten og brukervennligheten til quizen. Det gjør derfor ikke noe om du svarer feil, eller må gjette på svarene. Husk å fortelle oss hva du erfarer, eller forventer å erfare når du bruker denne funksjonen.** |
| M | Etter at informanten har løst en del spørsmål kan du be vedkommende om å avslutte, og vise sluttbildet av quizen.<br><br>**Slik ser resultatet av quizen ut. Hva synes du om denne? Svarer den til dine forventninger?** |
| | |

## Oppgave 7: Lete etter informasjon om kvalitativ metode

| | |
|---|---|
| 12 | **Du ønsker å finne mer ut om kvalitative metoder. Hvordan vil du gå frem for å finne informasjon om dette i nettkurset?**<br><br>M: Informanten skal ende opp på siden med Janets video som ligger under kritisk vurdering. For å finne denne siden kan informanten for eksempel bruke søkefunksjonen. Hvis ikke informanten selv både leser litt og klikker seg innom videoen skal du oppmuntre til det. Det er ikke nødvendig å se hele videoen.<br><br>**Hva synes du om informasjonen du finner om kvalitativ metode og måten den er presentert på?**<br><br>**Dette er den delen av nettkurset hvor flest brukere avslutter sin sekvens. Hva tror du grunnen kan være til dette?** |
| | |

## Oppgave 8: Formidling av statistikk

| | |
|---|---|
| 13<br><br>M | **Her ser du et eksempel på hvordan forskningsresultater formidles ved hjelp av statistiske begrep. Hvordan forstår du disse resultatene, hva har du evt. problemer med. To statistiske begrep som er brukt her er signifikans og p-verdi. Velg et av disse begrepene. Let frem en del av nettkurset som omtaler dette begrepet dette.**<br><br>Finnes i formidle og analysere tall under fanen kritisk vurdering. Informanten velger selv hvilken side som benyttes videre.<br><br>**Bruk litt tid på å orientere deg og lese litt av det som er beskrevet her. Gi beskjed når du er klar til neste spørsmål.**<br><br>**Hvordan oppfatter du denne informasjonen og hva synes du om måten den er formidlet på?**<br><br>**Ville denne informasjonen være til hjelp for deg i din arbeidshverdag sånn at du lettere kunne bruke forskningsresultater i praksisnære situasjoner?**<br><br>**Hvis du kunne endre på noe eller legge til noe på denne siden for å gjøre det lettere å forstå slike analytiske begreper hva ville du da ha gjort? Tenk helt fritt. Hvis du kunne få hvilken som helst type hjelp her - hva ville du da ha ønsket deg?** |
| | |

## Oppgave 9:Bruk av hjelpefunksjoner (søk og ordliste)

| | |
|---|---|
| 14 | **Her har du et sammendrag av en forskningsartikkel. Skumles dette og se om du finner noen begreper du er usikker på om du helt vet hva betyr. Hvordan kan du bruke nettkurset til å hjelpe deg å finne ut hva disse begrepene betyr?** |
| | |

**DEBRIEF**

**Det var de oppgavene jeg hadde tenkt vi skulle se på i dag. Jeg har noen spørsmål om hva du synes om dette nettstedet før vi avslutter:**

| | |
|---|---|
| 15a | **Hva slags nettsted er dette? Hvorfor tror du den er blitt laget?** |
| | |
| 15b | **De som har utviklet nettkurset håper at det kan være til hjelp som en innføring i kunnskapsbasert praksis generelt, og til å forstå og bruke forskningsresultater i praksisnære situasjoner spesielt.**<br><br>**Basert på dine erfaringer med å bruke nettkurset, både i dag og evt. tidligere, er du enig eller uenig i at nettkurset slik det fremstår i dag kan fylle disse funksjonene? Hvorfor /hvorfor ikke?** |
| | |
| 15c | **Hvilke endringer mener du trengs for at nettkurset kan være en hjelp til å bruke forskningsresultater i praksisnære situasjoner?** |
| | |
| 15d | **Vi kan bruke forskningsresultater på minst tre ulike måter: Instrumentelt bruk (direkte endret praksis), Indirekte bruk (endrer kunnskap og eventuelt holdninger, men ikke adferd blant helsepersonell) eller overtalende bruk (bruker forskningsresultater for å overtale andre for å skape forandringer).**<br><br>Vis skjema med oversikt og eksempler på disse tre kategoriene. |

| M | Hvilke (n) av disse tre måtene å bruke forskning på mener du nettkurset best fremmer slik det fremstår i dag? |
|---|---|
| | |

| 16a | Hvordan ville du karakterisere dette nettstedet for en kollega som har ca. lik internett erfaringsbakgrunn som deg. |
|---|---|
| | |

| 16b | Hvordan ville du karakterisere dette nettstedet for en kollega som har ca. lik kunnskap om kunnskapsbasert praksis som deg. |
|---|---|
| | |

| 17 | Fant du informasjon som er nyttig for deg? Lærte du noe nytt? |
|---|---|
| | |

| 18 | Basert på det utdraget av nettkurset du har sett på nå, liker du nettkurset? Hvorfor / Hvorfor ikke? |
|---|---|
| | |

| 19 | Er dette noe du ville bruke? Er dette noe du ville anbefale til andre? Hvorfor/hvorfor ikke? |
|---|---|
| | |

| 20 | Kan du oppsummere det vi har snakket om her, ved å si 3 gode ting og 3 dårlige ting om denne tjenesten? |
|---|---|
| | |

| | |
|---|---|
| **21** | **OK, nå som vi har sett på denne tjenesten, la oss tenke helt fritt.** Ikke tenke praktisk i det hele tatt – hva slags ting skulle du ØNSKE deg at en slik tjeneste kunne gjøre for deg? Har du noen gang tenkt at jeg skulle ønske at et eller annet tjeneste skulle gjøre "det og det" for meg? |
| | |

**Har du noen siste spørsmål eller kommentarer?**

Det var alle spørsmål om nettstedet, men nå har jeg et siste spørsmål: har du noen forslag til hvordan vi kunne ha gjort denne testen bedre, f. eks med hensyn til booking av timen din, eller informasjonen du fikk, eller måten testen ble gjennomført i dag?

**Tusen takk. Det var det, vi er ferdige.**

**- Trykk "Stop" knappen for å avslutte opptaket.**
**- Henvis til kontakt informasjon på infoskriv og si at hun/han kan sende en e-post eller ringe hvis de kommer på noe senere eller har spørsmål.**
**- Følg deltager ut til trappa.**

**Testleder – etter testen:**

**- Nullstill cookies og history.**
**- Lukk nettleseren.**
**- Sjekk at test opptaket er avsluttet og lagret.**

(Tilpasset med utgangspunkt i Rosenbaums intervjuguide til studie av Cochrane Library. Brukt med tillatelse gitt 2.februar 2011).

## APPENDIX VIII: Background questionaire for potential participants

Kryss av på en av kategoriene i hver tabell:

Tabell 1: Tidligere kjennskap til modellen for kunnskapsbasert praksis.

| **Tidligere kjennskap til modellen for Kunnskapsbasert praksis (KBP)** | **Beskrivelse av nivå** |
|---|---|
| Ny til modellen | Jeg har ingen kjennskap til modellen eller jeg har hørt om kunnskapsbasert praksis, men kan ikke beskrive hva modellen går ut på. |
| Grunnleggende kunnskap til modellen | Jeg har deltatt på korte kurs (timer – 2 dager), eller lest om modellen i bøker eller tidsskrift. Jeg kan beskrive modellen og de seks trinnene. |
| Erfaring med modellen | Jeg har deltatt på videreutdanning eller masterutdanning innen KBP, eller underviser i KBP. Jeg har praktisk erfaring med å bruke modellen i mitt arbeid. |

Tabell 2: Bruk av internett:

| **Hvor lenge har du brukt internett:** | **Hvor ofte bruker du internett:** | **Hva bruker du internett til?** (For eksempel: Betale regninger, kjøpe varer eller tjenester, lese aviser, holde kontakt med famile/venner via e-post og/eller sosiale medier, skaffe meg kunnskap). |
|---|---|---|
| 1-2 år | Daglig | |
| 3-4 år | Ukentlig | |
| 5 år eller mer | Månedlig | |

Tabell 3: Bruk av datamaskin:

| **Type datamaskin** | |
|---|---|
| Jeg bruker hovedsakelig PC | Jeg bruker hovedsakelig Mac |

Tabell 4: Informasjons- og kommunikasjonsteknologiske (IKT) ferdigheter.

| **Beskrivelse av nivå** | **IKT- ferdigheter** |
|---|---|
| Enkelt nivå | Slå på datamaskinen.<br>Laste ned et program.<br>Bruke mus og tastatur.<br>Lagre arbeid.<br>Skrive ut. |
| Moderat nivå<br>(Mestrer enkelt nivå i tillegg til følgende ferdigheter) | Bruke e-post.<br>Gå inn på internett, enkel bruk av søkemotorer.<br>Forstå lagring og kataloger |
| Avansert nivå<br>(Mestrer moderat nivå i tillegg til følgende ferdigheter) | Bruke perifere inn-enheter (skanner, kamera, video).<br>Bruke søkemotorer og avanserte søketeknikker på internett. |

Tabell 5: Motivasjon for bruk av KBP: Kryss av der du kjenner deg mest igjen.

| **Indre motivasjon** | **Ytre motivasjon** | **Blandet motivasjon** | **Annen motivasjon** |
|---|---|---|---|
| Jeg er nysgjerrig og vitebegjærlig, eller jeg trenger kunnskap knyttet til en konkret problemstilling i praksis. | Jeg er under videreutdanning eller arbeider i et helseforetak hvor vi skal arbeide kunnskapsbasert. Det forventes derfor av meg at jeg kjenner til og bruker KBP. | Jeg kjenner meg igjen i begge de to foregående kategoriene, og opplever at begge påvirker min motivasjon. | Jeg kjenner meg ikke igjen i noen av de tre foregående kategoriene. Min motivasjon for å bruke KBP er: |

Tabell 6: Bruk av forskning i praksisnære situasjoner. Velg det mest dekkende alternativet:

| **Når jeg bruker forskning i praksisnære situasjoner er det hovedsakelig:** | | |
|---|---|---|
| *Direkte bruk:*<br>Jeg bruker forskningsresultater i direkte pasientkontakt. For eksempel: Bruk av et kartleggingsskjema for risikovurdering hos en pasient. | *Indirekte bruk:*<br>Forskningsresultater endrer min forståelse, kunnskap og holdning, men ikke min adferd. For eksempel: Hvis jeg leser en artikkel om kunnskapsbasert praksis forstår jeg mer av konseptet, men jeg gjør ikke bevisste valg i praksissituasjoner basert på det jeg har lest. | *Overtalende bruk:*<br>Jeg bruker forskningsresultater for å overtale andre for å skape forandringer. For eksempel: Jeg argumenterer med forskningsresulater overfor min overordnede for å få midler til å kjøpe inn utstyr eller øke bemanningen. |
| **Den type bruk av forskning jeg synes er vanskeligst er:** | | |
| Direkte bruk | Indirekte bruk | Overtalende bruk |
| Marker langs denne linjen hvor vanskelig du synes det er å bruke forskning i praksisnære situasjoner. Sluttpunktet til høyre er det vanskeligste du kan tenke deg, mens sluttpunktet til venstre er det letteste du kan tenke deg.<br>_____ | | |

| Tabell 7: Alder | | | | |
|---|---|---|---|---|
| 20-29 | 30-39 | 40-49 | 50-59 | 60-69 |

| Tabell 8: Grunnutdanning: | | | | |
|---|---|---|---|---|
| Sykepleier | Vernepleier | Ergoterapeut | Fysioterapeut | Radiograf |

| Tabell 9: Hvor lenge er det siden du fullførte grunnutdanningen | | | | | | |
|---|---|---|---|---|---|---|
| Under 5 år | 5-10 år | 11-15 år | 16-20 år | 21-25 år | 26-30 år | Over 31 år |

**Til dere som eier og jobber med å utvikle nettstedet kunnskapsbasertpraksis.no**

Som kjent for de fleste av dere er min masteroppgave en deskriptiv kvalitativ studie av brukeropplevelsen av kunnskapsbasertpraksis.no. Jeg har nå gjennomført både pilottest og datainnsamling på Kunnskapssenteret i Oslo sammen med min hovedveileder Sarah Rosenbaum og medstudent Cecilie Jelstad. Jeg sitter nå på data fra til sammen ni brukertester og skal til og analyserer dataene.

Jeg vil bruke et rammeverk utviklet av informasjonarkitekt Peter Morville (2004) som utgangspunkt for min analyse. Dette rammeverket tar utgangspunkt i syv forskjellige fasetter knyttet til brukeropplevelse av et nettsted. Etter råd fra veileder og som beskrevet i litteratur om brukertesting (Kuniavsky, 2003; Rubin & Chisnell, 2008) inneholder dette dokumentet en kort oversikt over foreløpige funn knyttet til fasetten brukervennlighet. Det vil si funksjoner eller aspekter av nettstedet hvor datatekniske endringer kan være på sin plass for å øke brukeropplevelsen.

Som sagt er dette kun FORELØPIGE funn. Det som blir omtalt her er derfor kun de problemene som har klart og ved gjentatte ganger blitt påpekt under brukertestene. I dette legger jeg at flesteparten av informantene hadde problemer med å løse en oppgave eller ble irritert over en funksjon. Problemet trenger ikke å være alvorlig i seg selv, men hvis det irriterer flesteparten av brukerne er det likevel et problem som det bør tas tak i for å forbedre nettstedet(Kuniavsky, 2003; Rubin & Chisnell, 2008). Etter endt analyse vil det derfor kunne komme frem andre problemer i tillegg til de som er beskrevet her. Fullstendig rapport knyttet til alle fasetter av brukeropplevelsen vil være dere i hende innen juni 2012.

De foreløpige funnene blir presentert skjematisk under disse kolonnene: Først kommer en kort beskrivelse av hvilken del av nettkurset som er testet, så kommer en oppsummering av hovedfunn knyttet til denne delen, deretter kommer en illustrasjon eller sitat som beskriver brukerens opplevelse og tilslutt eventuelle forslag til forbedringer.

Med vennlig hilsen Lena Stabell, masterstudent i kunnskapsbasert praksis ved Høgskolen i Bergen.

Referanser: Kuniavsky, M. (2003) *Observing the user experience: a practitioner's guide to user research.* San Francisco, Morgan Kaufmann.

Morville, P. (2004) *User Experience Design* [Internett], Semanticstudios. Tilgjengelig fra: <http://semanticstudios.com/publications/semantics/000029.php> [Nedlastet 17.01.11].

Rubin, J. & Chisnell, D. (2008) *Handbook of usability testing: how to plan, design, and conduct effective tests.* Indianapolis, Wiley Publishing.

Foreløpige funn knyttet til fasetten brukervennlighet:

| Funksjon eller del av nettkurset | Hovedfunn | Illustrasjon | Forslag til endringer |
|---|---|---|---|
| **Forsiden til nettstedet.**<br><br>kunnskapsbasertpraksis.no | Informantene gir uttrykk for at de savner en innføring i hvordan de kan bruke nettkurset og hvordan det er lagt opp.<br><br>Mange informanter påpekte liten og grå skrift. | *"kunne vært tydeligere om hva det er og hvordan det skal brukes. "*<br><br>*"hvis jeg skulle ta et nettkurs, ville jeg forvente å se "START" ett eller annet sted."*<br><br>*"For liten skrift, ingen blikkfang. Savner markører som sier hvor jeg skal lete, synes det var litt blekt og ullent."* | Lag en bruksanvisning som kort forklarer hvordan de kan komme i gang og bruke nettkurset. Spesielt viktig hvis dere ender på å kunne velge flere veier innad i nettkurset.<br><br>Revurdere layout/design med hensyn til tydeligere blikkfang, ønsker lesers oppmerksomhet. |

| Funksjon eller del av nettkurset | Hovedfunn | Illustrasjon | Forslag til endringer |
|---|---|---|---|
| **Videosnutter.**<br><br>Flere videoer ble sett på under brukertestene, men alle var innom Gros video på Kunnskapsbasert praksis \| Kunnskapsbasert praksis og Janets video på Kvalitativ metode \| Kunnskapsbasert praksis | Generelt likte informantene videoene, men syntes de var for lange.<br><br>Ikke alle informantene fant videoene på egen hånd da de ligger langt nede på siden slik at de må skrolle for å se de. | *"Jeg synes det er veldig greit med video snutter for det er jo noe helt annet enn å lese, så det bryter, blir ikke så monotont."*<br><br>*"Lange sekvenser. Det er mye å sitte stille og se på en dame som snakker på et lite skjermbilde i 10. 5 minutt."*<br><br>*"Synes den var litt lang, den kunne vært på ca halve tiden." (om Gros video som er på 5,23 min).*<br><br>Etter å ha blitt ledet til en video som ligger litt nede på siden: *"jeg er ikke så god til å skrolle… jeg må lære meg å gå lenger ned på sidene."*<br><br>*"(videoen ligger)Litt langt nede, her er det litt langt imellom så du tror ikke helt at det er mer på denne siden her."* | Ha små videoikoner øverst på siden hvor videoene ligger som i dag lengre ned på siden. |

| Funksjon eller del av nettkurset | Hovedfunn | Illustrasjon | Forslag til endringer |
|---|---|---|---|
| **Quiz/Test deg selv.**<br><br>Vi brukte quizen på disse sidene:<br><br>Test deg selv \| Kunnskapsbasert praksis og Test deg selv \| Kunnskapsbasert praksis. | Generelt likte informantene quiz og synes de er bedre enn øvingsoppgaver.<br><br>Informantene hadde problemer med å navigere seg gjennom de ulike spørsmålene, spesielt fant de det ikke intuitivt at de måtte trykke på prøv igjen knappen for å kunne velge et nytt svaralternativ når de hadde svart feil.<br><br>Samtlige informanter ble irritert over at det ikke var opplyst at det kunne være flere riktige svaralternativ på noen av spørsmålene. | *"..jeg liker den type ting, jeg synes det er morsomt. Jeg liker sånt mye bedre enn øvingsoppgaver."*<br><br>*"Quizen var kjekt når du valgte så var det slik jeg ventet – grå sladdet tekst så kan du ikke gå videre, men måtte trykke prøv igjen for å svare for andre gang."*<br><br>*"Står ikke noe om at man kan krysse på flere ting her, så da må jeg gå ut i fra at det bare er en…"*<br><br>*"Det var teit. De prøvde og lure meg…. "* | Forenkle navigeringen innad i quizen, er det f. eks nødvendig at man må trykke prøv igjen når man har fått feil svar første gang? |

| Funksjon eller del av nettkurset | Hovedfunn | Illustrasjon | Forslag til endringer |
|---|---|---|---|
| **Søkefunksjonen.** | Flesteparten av informantene brukte denne på eget initiativ, spesielt de uten bakgrunnskunnskap innen kunnskapsbasert praksis.<br><br>Søkefunksjonen gir ikke gode nok treff.<br><br>Informantene ønsker også at søkefunksjonen skal gi treff på engelske statistiske ord som de for eksempel finner i forskningsartikler. | Eksempler vi opplevde:<br><br>Ved å søke på ”kvalitativ metode” kommer hovedsiden om dette først opp som treff nr. 4, og en må skrolle ned på siden for å finne det.<br><br>En får ikke treff på statistiske begrep som rate ratio. | Få hovedtreffet øverst i resultatlisten etter søk, gjerne med en kort definisjon av begrepet helt øverst (tilsvarende ordliste).<br><br>Se på søkemotorens muligheter for å styre bestemte sider til toppen av trefflisten ved søk med bestemte termer. Gjennomfør dette for søketermene hvor det finnes opplagte "beste treff" sider. Begynn med de hyppigste søkte termene. |

| Funksjon eller del av nettkurset | Hovedfunn | Illustrasjon | Forslag til endringer |
|---|---|---|---|
| **Ordlister.** | Ikke alle informantene så denne funksjonen, men nesten alle etterspurte den eller sa de ønsket seg en slik funksjon.<br><br>Informantene var negative til at ordlisten på norsk kun var et vedlegg til en side på kunnskapssenteret. Dette førte også til at en del deltakere trodde at de fortsatt var på nettkurset og klikket seg videre på kunnskapssenterets side i stedet.<br><br>Den engelske ordlisten ble ikke oppfattet som et oppslagsverk, men som en mengde informasjon på grunn av layouten.<br><br>Begrepet norsk ordliste skapte litt forvirring. En trodde det var snakk om en generell norsk ordbok, en annen forventet ikke å finne engelske ord der siden den het norsk ordbok. | *"Ønsker meg en sånn oversikt over hva de forskjellige begrepene er. Jeg vet ikke hvor jeg skal lete"*<br><br>*"Jeg likte ikke at det het norsk ordliste. Hadde den bare het "ordliste" hadde jeg ikke tenkt så mye over men fordi det het "norsk"… synes det var veldig greit nå jeg klikket inn på så sto det hva det var til.. men…"* | Ordlistene bør komme opp automatisk i nettkurset, ikke som et pdf vedlegg.<br><br>Gjerne en ordliste som beskriver både norske og engelske termer sammen slik at man kan få treff på både norske og engelske ord i samme ordliste.<br><br>Ønskelig med et annet navn enn norsk ordliste. |

| Funksjon eller del av nettkurset | Hovedfunn | Illustrasjon | Forslag til endringer |
|---|---|---|---|
| **Navigering på nettsiden.**<br><br>Bruk av faner og menyer.<br><br>Bruk av piler for å navigere seg frem og tilbake.<br><br>(NB: Behov for orientering om hvordan bruke nettkurset er beskrevet tidligere.) | Informantene orienterte seg greit rundt fanene øverst på hver side, og likte at disse var like på alle sidene.<br>De fleste orienterte seg mot meny i venstre billedkant under de ulike fanene.<br>Noen orienterte seg ved hjelp av læringsmålene.<br><br>Det var ikke intuitivt for alle at man kunne trykke på logoen for å komme tilbake til første siden av nettkurset. Om lag halvparten navigerte seg tilbake hit ved hjelp av piltastene i nettleseren.<br><br>De små grå pilene nederst på hver side ble kun brukt av en informant for å navigere seg rundt i nettkurset. Denne brukte denne funksjonen kun en gang.<br>En annen informant ble forvirret av disse mens hun løste quiz og trodde det var der hun skulle trykke for å komme til neste spørsmål. | *"Det over den blå streken – der vil jeg automatisk gå for å lete, men det er nesten så jeg ikke ser den lille teksten under bildene."*<br><br>*"Da ser jeg her på høyre side hva det gir meg innføring i."*<br><br>"*Læringsmål til å fortelle meg hva jeg skal gå igjennom og hva jeg skal se etter."* | Fjerne de små pilene på hver side som kan brukes for å orientere seg til neste eller forrige side? |

# APPENDIX X: Main findings presented for member checking

Her er en oversikt over hovedfunnene fra brukertestene. Det er ikke sikkert at du kjenner deg igjen i alle funnene, men det er fint å få en tilbakemelding på om du kjenner deg igjen og synes det dekker din opplevelse i grove trekk. KBP er forkortelse for kunnskapsbasert praksis.

- Generelt er informantene positive til nettstedet og synes det er relativt lett å bruke. En rekke områder med forbedringspotensiale ble derimot identifisert.
- Tidligere kjennskap til KBP førte til lettere navigering og mindre bruk av søkefunksjonen.
- Nettstedet oppfattes ikke som et kurs, men som en informasjonsside eller et oppslagsverk.
- Slik nettstedet fremstår i dag ser det ut til best å fremme indirekte bruk av forskning i praksisnære situasjoner. Det betyr at det er kunnskap og holdninger som endres hos helsepersonell og ikke nødvendigvis handlinger.
- Nettkurset fremstår best som et supplement til annen undervisning eller til oppfriskning for de med forhåndskunnskaper om KBP.
- Brukerne betegner kurset som for omfattende for de uten forhåndkunnskaper om KBP. De med god forhåndskunnskap om KBP ønsker mer utdypning på enkelte emner. Mye skrift føles overveldende. Det er ønskelig å slippe å skrolle så mye.
- Selv om informantene uttrykte en generell tilfredshet med nettkurset, kreves det både tid, tålmodighet og motivasjon fra brukerne for å utnytte dets fulle potensial.
- Positivt at nettkurset er gratis og tilgjengelig for alle. Ikke ønskelig med innlogging eller kursbevis etter gjennomføring av hele nettkurset.
- Nettstedet oppleves troverdig og oppdatert. Ønskelig med kildereferanser til det som blir presentert der.
- Fargeskalaen er nøytral og rolig. Skriftstørrelsen er for liten.
- Navigering: Læringsmålene brukes for å orientere seg på siden. Bra at fanene er lik på alle sidene. Ønskelig å kunne klikke på illustrasjoner og komme rett til hovedside hvor mer detaljer er beskrevet, f.eks de ulike trinnene i KBP.
- Nettkurset gir ikke kjappe nok løsninger til å kunne bli brukt i en praksis situasjon.
- Nettkurset kan oppleves for akademisk for ”folk på gulvet”, vanskelig å forstå uttrykk som sprørsmålsformulering og PICO hvis en ikke kjente til KBP fra før.

**Det er ønskelig med følgende forbedringer eller endringer:**

- En klarere veiledning til hvordan å komme i gang med å bruke nettkurset.
- Beholde, men korte ned på tiden på videosnuttene. Ha videoikoner mer synlige og lengre opp på siden. En pdf versjon av innholdet i videoene kan være nyttig for de som ønsker å gå igjennom stoffet flere ganger. Ønsker norske forelesere i videoene.
- Forenkle navigering av quiz og gi tydeligere instruksjoner. Quiz er en gøy måte å sjekke seg selv på.
- En mer sensitiv søkefunksjon, som også gir treff på engelsk. Ønsker også at den gir forslag til ord man kan søke på. Ha en ordliste direkte inne i nettkurset, og ikke som et eksternt vedlegg.