Evidence Based Practice (EBP) is a relatively new approach that professionals are using to cope with the ever-growing body of literature in their fields. The goal of EBP is to effectively use this body of literature to improve professional practice, thus improving the quality of services. A major component of EBP is asking a focused, well-built question, referred to in this paper as an Evidence Based Practice Question (EBPQ). This paper reports the findings of an exploratory study that examines the use an EBPQ to respond to reference questions emailed to a university library reference desk. A purposive sample of 30 randomly selected reference emails was divided into two groups, the EBPQ group and the control group. The professional searcher who conducted the searches used the same approach in responding to each emailed reference question, except that the EBPQ group searches were guided by EBPQs, and the control group's responses were not. The results indicate that searches guided by using EBPQs are more focused, apply more resources to the search process, and take less time than searches not guided by using EBPQs. These conclusions suggest that EBPQs appear to be useful for improving that search process and that further research is warranted.

Headings:

Evidence Based Practice, Query Formulation, Online Information Storage and

Retrieval

EXPLORING THE USE OF EVIDENCE BASED PRACTICE QUESTIONS TO
IMPROVE THE SEARCH PROCESS

by
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Introduction

The literatures that inform the professional and academic disciplines continue to grow at staggering rates, as does the need for applying new knowledge from these literatures. Evidence Based Practice (EBP) is a relatively new approach that professionals are using to cope with this ever-growing body of literature. The goal of EBP is to improve the information search process so that professionals and academicians can effectively use the relevant literature to improve the quality of their work.

The application of EBP has resulted in a paradigm shift in many professions, particularly in medicine. Rather than relying heavily on intuition, memory, or experience to answer most questions of patient care, many medical professionals are applying searches for up-to-date literature to their clinical questions and then combining the results with their intuition, memory, and experience to effectively evaluate and identify the best course of action. In the past ten years, Evidence Based Medicine has come to the forefront of medicine as a way to effectively use the abundance of potentially useful information.

Countless academic and professional fields outside of medicine are benefiting from wider access to their literatures and the application of EBP. Yet EBP's most basic component, developing and using an Evidence Based Practice Question (the EBPQ), does not appear to have been empirically studied in fields outside of medicine. This paper

reports the findings of an exploratory study of the use of the EBPQ to guide searches that respond to reference questions submitted to a university library reference department.

A Review of the Literature

Evidence Based Practice

The benefits of EBP in medicine and their relationship to improved patient care have been documented in several studies. The most common definition of Evidence Based Medicine is taken from Dr. David Sackett (1996): Evidence Based Medicine is, "the conscientious, explicit, and judicious use of current best evidence in making decisions about the care of the individual patient. It means integrating individual clinical expertise with the best available external clinical evidence from systematic research"(71). One of the components of evidence-based medicine is the well built question, referred to in this paper as the Evidence Based Practice Question (EBPQ). According to Sackett in a 1998 study, nearly half of the information searches formulated using well-built questions (EBPQs) either lead to a better therapy/diagnostic test, or actually corrected a previous treatment plan (p. 1336). More recently, Steven Crowley *et al* (2003) reported that, "obtaining useful data altered patient management 47% of the time"(p. 270).

Forming a well-built question, or EBPQ, is a major contributor to the effectiveness of EBP. Wilson *et al* (2002) argues that "a well-structured question will focus [the healthcare provider] on the problem he is most concerned with and will guide his search strategy" (p. 500), and that learning to ask these questions ensures active,

critical thinking. Most authors structure a well-built clinical question around four or five basic elements. Patricia Stone (2002) defines the well-built clinical question using the acronym, PICO: the patient or problem (P); the intervention or independent variable (I); the comparison (C); and the outcome(s) of interest (O). (p. 97) More generally, a well-built question can be defined as a question statement that includes up to five key elements: setting, population, action/idea, alternative to the action/idea, and outcome. For the purposes of this study, this definition best defines an EBPQ.

In the library and information science field, Andrew Booth (2006) calls for more study of questions within EBP. He finds that, "Although a few key authors have published extensively on all aspects of evidence-based information practice process, including question formulation, there is little in the way of empirical research" (p. 355). While Booth's focus is studying EBP is the field of library and information science, his findings reveal a need for more research in question formulation for all disciplines in which EBP is being applied.

EBP and Information Need

Booth (2006) argues that the EBPQ can be useful in disciplines beyond medicine. Using an EBPQ provides a structure in which it is possible to know what is unknown. Belkin, Oddy, and Brooks (1982), researchers from the field of library and information science (LIS), studied the phenomenon of perceiving an information need, yet not knowing how to resolve that need, and called it the "Anomalous State of Knowledge (ASK)." Other LIS researchers have been building on this research, attempting to

provide structures that effectively resolve an ASK. One example is Charles Cole *et al* (2005) who proposed forming a "structural code" using an essay format. According to Cole *et al*, "unknown item need…is not an effective start state; the structural code places the user in the position of having to predict what information is needed based on vague conceptions of his or her information need"(p. 1544). Combining the strategies of the EBPQ with Cole's approach to resolving an information need through a structural code may change the way users approach and use information. The components of an EBPQ, namely identifying the setting, population, action/idea, alternative action/idea, and outcome, act as a structural code and clarify vague conceptions of an information need.

Need for Relevant Search Results

It is important to note that procuring "information and its sources" has never been the ultimate goal of a library user. A user, after locating resources, must be able to effectively evaluate them and use the relevant information within them. Strategies of EBP, especially asking EBPQs, may provide not only an approach to conducting the search, but also they may provide the structures necessary to effectively evaluate the results of the search to discern between relevant and irrelevant information.

The focus that an EBPQ can provide will equip the user with a structural code not only for approaching resources to satisfy an information need, but also for deciding if his/her information need has been satisfied by relevant results. Often a user will "satisfice" an information need, or choose "the first satisfactory alternative…over the best, given the burden of gathering information on all alternatives to make a wise

decision" (Buczynski, 2005). This idea of satisficing, though first developed by Herbert Simon (1955) in sociology, has become a buzzword in the library and information science literature. Applying satisficing practices, just as applying EBP, is a way for users to cope with the ever-growing body of literature available. Prabha *et al* (2007) argue that satisficing is what all users must do in an "information space so saturated that there is no certainty that the relevant information has been identified" (p. 74).

Satisficing has usually been shown to be a very useful, pragmatic approach to finding quality information, but issues arise when the characteristics that a user should do when satisficing does not directly lead to any satisfactory alternative. Using an EBPQ to guide a satisficing approach may help users in such situations. For example, Agosto *et al* (2002) found that time constraints, physical restraints, and information overload/boredom were the limits most subjects in their study used to guide their satisficing behavior. Instead of ending a search when a satisfactory alternative was found, which Agosto *et al* hypothesized would be the main "stop rule," or reason to end a search, "these other stop rules require[d] decision makers to stop evaluating decision outcomes before they locate[d] a satisficing choice" (p. 25). Using an EBPQ may help users deal with their satisficing behaviors, giving them a better stop rule than time constraints, boredom, or information overload.

Definitions and Research Questions

The following definitions of key terms are used in this study:

EBP: Evidenced Based Practice, as defined Sackett (1996) is, "the conscientious,

explicit, and judicious use of current best evidence in making decisions….integrating

individual…expertise with the best available external…evidence from systematic

research"(71).

EBPQ: Evidence Based Practice Question; forming a question based on specific

components of an information need as defined by Booth (2006). These components

include setting, population, action/idea, alternative action/idea, and

outcome/evaluation (363).

Structural Code: based on the concept of the "structural code" developed by Cole *et*

al (2005); a framework that directs a user from an anomalous state of knowledge

(ASK) to fulfilling information need (1544).

The study attempts answer the following three questions:

1) Do EBPQ-based searches differ from searches that do not use this approach?

This question is at the very core of this research. If there is a difference between using

an EBPQ during a search and not using an EBPQ, further study must be done to

better understand exactly what is happening when an EBPQ is used.

2) Will using an EBPQ-based strategy improve search results?

An EBPQ will be considered to have improved search results in the following

situations: a) if the components of an EBPQ clarify an information need; b) if the use

improves relevance of search results; and c) if there is a reduction in the amount of

time needed to conduct a search.

3) Can an EBPQ act as a structural code for the user to guide the search process?

This question is based on Cole's findings that a structural code is necessary to discern

information need. The EBPQ can also be used throughout the search process, acting

as a structural guide to discern the need for information, to access information, and to

evaluate the relevance of that information in satisfying the need.

Methodology

To answer the research questions, a comparative study was undertaken using

academic library reference questions to generate data for analysis. All reference

questions emailed to Davis Library at the University of North Carolina at Chapel Hill

between Sept 1, 2006 and Feb 13, 2007 formed the initial basis for this study. The

1319 total emailed questions were gathered from a body of users that included not

only those affiliated with the University, but also members of the general public who

made such requests. The Electronic Reference Services Librarian randomly chose

sixty of these emails to send to the author of this paper who also acted as the

professional searcher for the purposes of this study. The emails sent to the

professional searcher were stripped of all identifying information. Time constraints

required the professional searcher to select a sample of 30 emails from the 60. In

order to be included in the sample the email had to be a reference question as defined

by the American National Standard for Library and Information Statistics (ANSI

Z39-1983) and adopted by the American Library Association's Reference and User

Services Association: "An information contact that involves the use, recommendation, interpretation, or instruction in the use of one or more information sources, or knowledge of such sources, by a member of the reference or information staff" (ALA | Definitions of a User Transaction). This definition limited the sample extensively. Roughly 30% of the 1319 questions emailed to Davis Library satisfied the requirements for a reference transaction; 70% were directional. (Personal communication, February 23, 2007)

Upon generating this purposive sample of 30 reference emails, a random number table was used to allocate the sample into two groups. The questions that were assigned odd numbers went into the EBPQ group, and the questions that were assigned even numbers went into the control group. The EBPQ group differed from the control group only in that an EBPQ was used to guide the search process. This search process included following the search strategy (see below), identifying results relevant to the emailed reference question, and evaluating if a useful response was found in the search. A useful response is defined as information that can be emailed to a user that directly or partially resolves the stated information need in the reference email. In this paper, each of the emailed reference questions is referred to as a "case".

The professional searcher applied this search process to each email or case through a remote search of electronic resources available at UNC, with the assumption that users with access to email and the web would be best served using those electronic resources. Since the purposive sample included a broad range of

questions, the definition of electronic resources is also broad: the online catalog,

library website, commercial databases, search engines available on the free web, and

websites were all considered electronic resources.

Each search was conducted with the same search strategy steps: 1) choose an

online resource to consult; 2) enter search terms; 3) evaluate results; 4) if necessary,

revise search terms; 5) repeat these steps until a useful response to the reference

transaction is found, or twenty minutes have been spent on the search.

Data collected using this search strategy included the general discipline with

which a request corresponded, (Science, Social Science, or Humanities), resources

used, all search terms entered, total number of search results, time spent on the

search, the number of useful search results (defined as results that directly support a

useful response), and whether a useful response could be developed. Qualitative notes

were taken after each search to record the professional searcher's personal reactions

while conducting the searches. Since this study is exploring process, the useful

response itself was not recorded or studied.

Upon completion of this process, all quantitative data collected were coded

and entered into a statistical software package for analysis (SPSS), and all qualitative

data taken from the notes recorded after each search were textually analyzed at the

phrase level. Phrases coded for analysis were derived from these notes. Criteria used

to find these phrases included any affective aspect of the search, and left out phrases

that recorded specific details about the search. For example, the phrase, "search went

really well" was textually analyzed, but the phrase, "this was a known item search" was left out.

Results

Quantitative Results

Quantitative results revealed that there was no significant difference between the EBPQ and control groups in terms of the number of searches done within a case, the total number search results, or the number of useful search results. For these groups, the p value was greater than .05, the defined cut-off value for significant difference. The number of terms used in the searches and the amount of time a search took was highly significant (p<.001). On average, the searches using EBPQs had approximately ten terms in searches, while the control group searched had approximately eight terms in searches. Part of this difference may be that the number of resources searched in cases in the EBPQ group was higher, and therefore more search terms were necessary. (Figure 1)

Figure 1
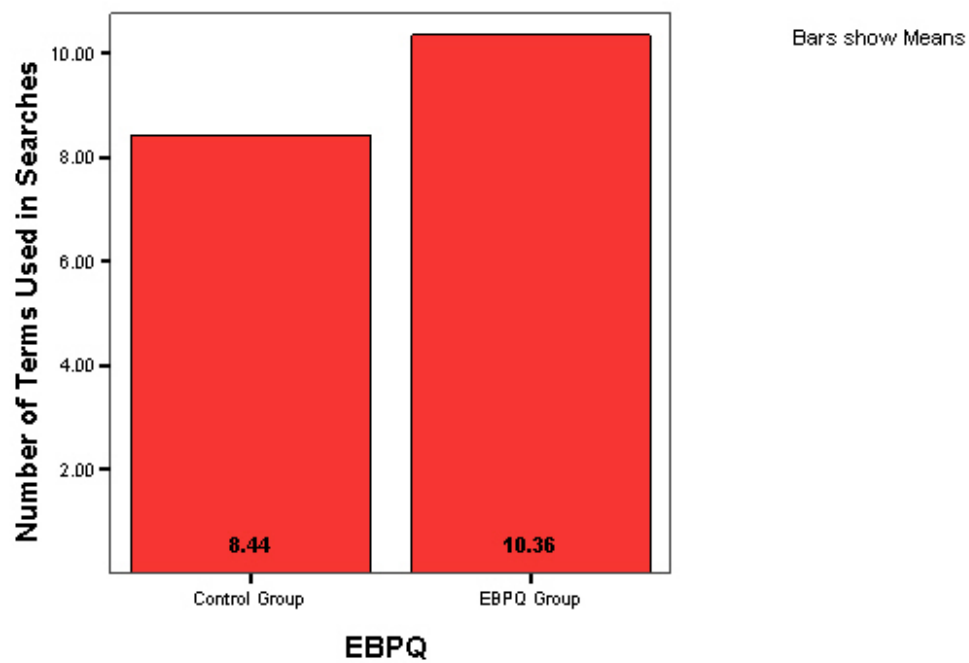
Although the average number of resources searched in the EBPQ group higher than in the control group, it was searches done in the control group that took the most time. On average, the control group used over twelve minutes per search, while the EBPQ group averaged less than ten minutes per search (Figure 2)

Figure 2
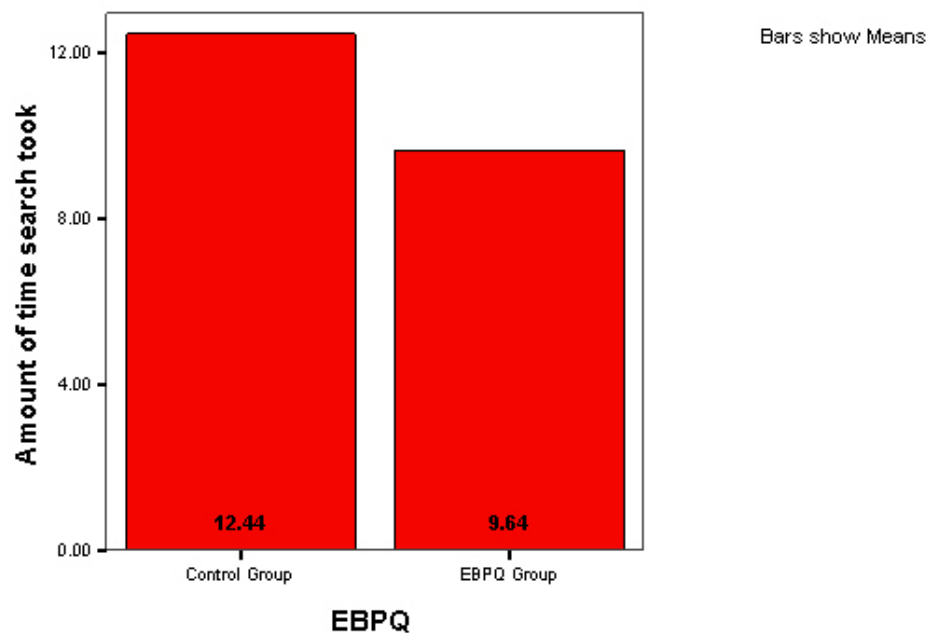
Significant differences were also found in whether a useful response was available to answer the user's original email query (p<.028). The usefulness of the response was determined by the professional searcher through an analysis of the original reference email to determine whether the results of the search satisfied the stated information need. Useful results for the EBPQ group were available for the user in 86% of the emails, compared to 56% of the emails in the comparison group. (Figures 3 and 4)
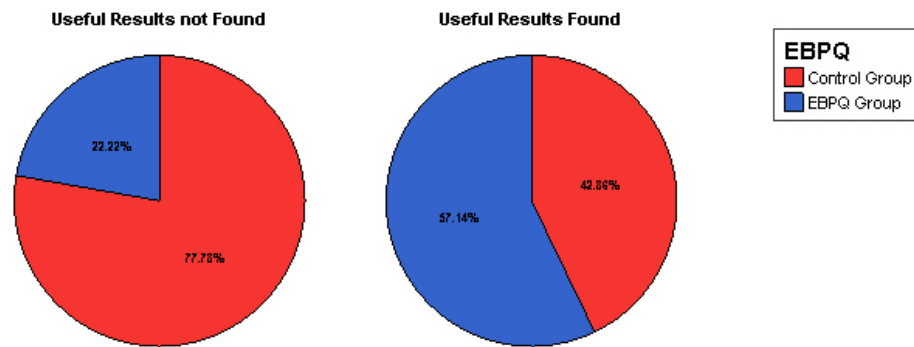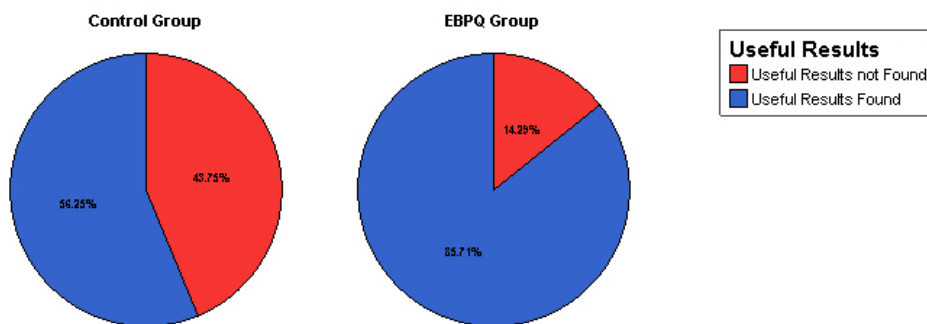
Figure 3

Useful Results not Found — 22.22% / 77.78% | Useful Results Found — 57.14% / 42.86% | EBPQ: Control Group, EBPQ Group

Figure 4

Control Group — 56.25% / 43.75% | EBPQ Group — 85.71% / 14.29% | Useful Results: Useful Results not Found, Useful Results Found

Analysis was also done to determine whether there was a significant

difference when the data were divided into groups by the general discipline: Science,

Social Sciences, or Humanities. Within the total sample of emails, three were related

to Science, 14 were related to Social Science, and 12 were related to Humanities. No

significant difference was found among the disciplines in the number of resources

searched, the numbers of searches done within each case, the number of terms used,

the number of search results found, or the number of useful results found. There was

a slight but significant difference found in the amount of time a search took ($p < .049$)

between the disciplines of Science and Social Science. More research must be done to

better understand what this difference may mean, since the results may be coincidental. Of the emails used in the purposive sample, only 10% were categorized to be in questions from Science. 47% were in Social Sciences, and 43% were in Humanities.

Qualitative Results

Two main groups of phrases were found using textual analysis of the professional searcher's notes on the affective qualities of the search: relative ease of search, and relative amount of focus within a search (figure 5).

Figure 5
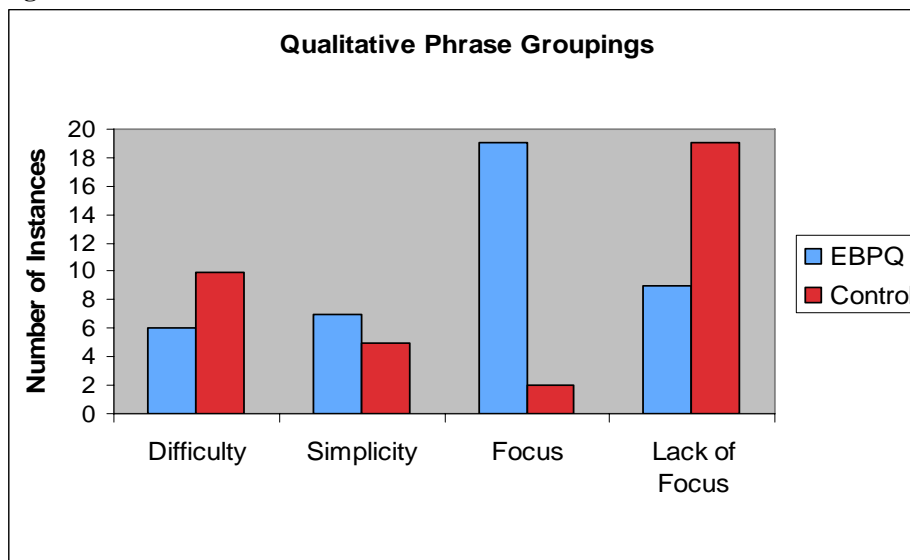
Ease of Search

Phrases in this group included phrases that described a search as easy or simple, such as "this search was relatively simple" and "most straightforward search so far;" as well as phrases that described a search as difficult or complex, such as "search was difficult," or "I wasn't sure where to look." The comparison searches conducted had 15 ease of search phrases, and these phrases composed 41% of the

control group phrases. Five (33%) reflected relative simplicity, and ten phrases (67%) reflected relative difficulty (Figure 6). In contrast only 13 phrases, 28% of the total EBPQ group phrases, had ease of search as their subject.
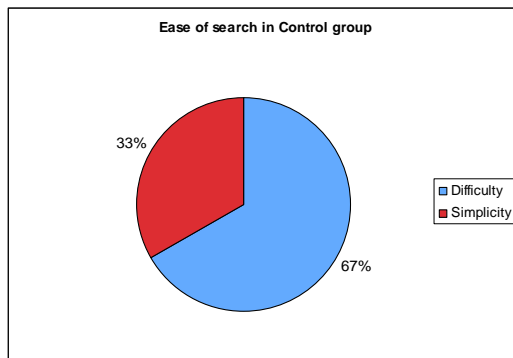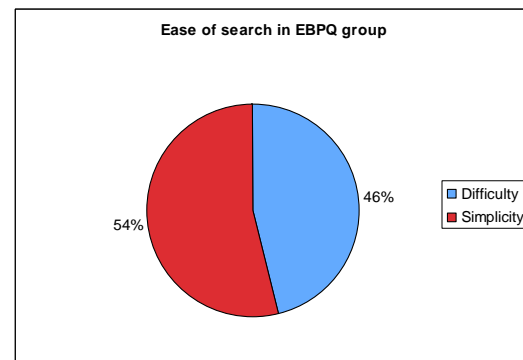
Figure 6

Ease of search in Control group

33%

67%

Difficulty
Simplicity

Figure 7

Ease of search in EBPQ group

46%

54%

Difficulty
Simplicity

Of these phrases in the EBPQ group, five phrases (46%) revealed difficulty of search, while seven phrases (54%) revealed ease of search (Figure 7). As shown if Figure 8, a search was more likely to be considered difficult than simple between the groups as a whole, but a search was more likely to be considered simple in the EBPQ group.

Figure 5
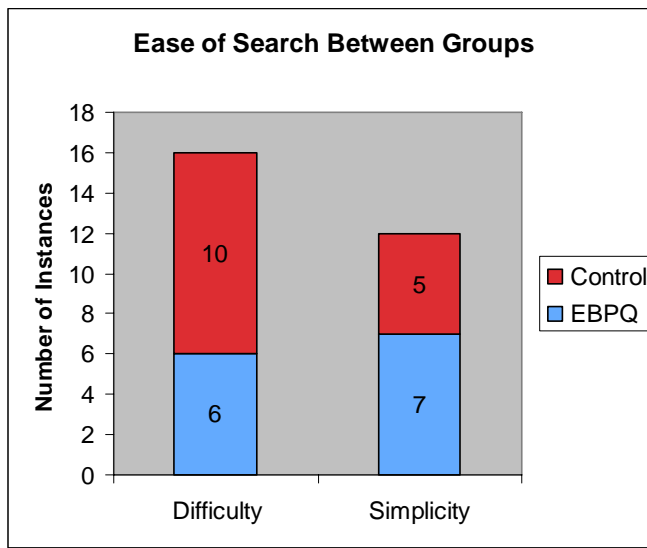
Focus

The idea of focus reveals the relative efficiency of the search, particularly how efficiently useful results were found to generate useful responses. This idea of focus is especially important due to the time limits imposed by the methodology. In twenty minutes, there is little time for distractions when one is looking for useful results. Such a time limit models the fast-paced environments in which users work.

Nineteen (41%) of the total phrases in the EBPQ group reflected a feeling of focus, and nine (20%) of the total phrases reflected a feeling of a lack of focus, for a total of 28 (61%) of the total phrases discussing the issue in the EBPQ group. Within the phrases discussing this idea of focus, 68% of the phrases in the EBPQ group indicated that the searches had a sense of focus, leaving 32% of the phrases indicating a lack of focus (Figure 9). In the control group, two (5%) of the total phrases reflected the feeling of focus, while nineteen (51%) of the total phrases reflected a lack of

focus. Within the phrases discussing focus in the control group, 90% indicated a lack

of focus. Only 10% indicated a sense of focus in the search (Figure 10).
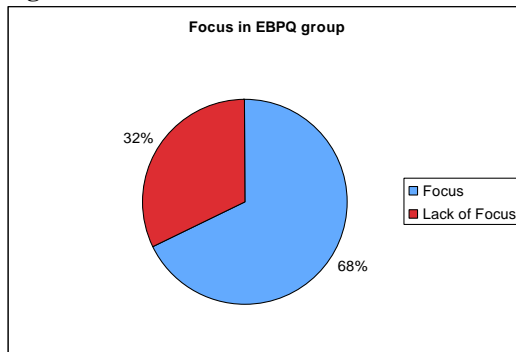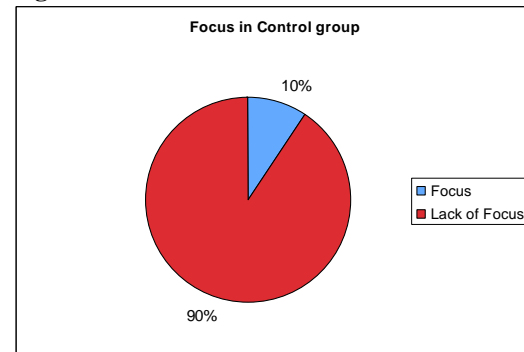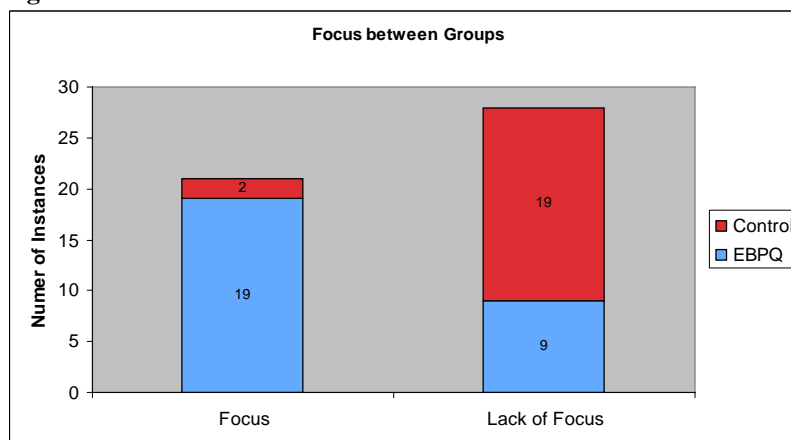
Figure 9

Figure 10

Nineteen (91%) of the phrases that reflected a sense of focus for the

professional searcher were found in the EBPQ group, while only two (9%) were

found in the control group. Nineteen (68%) of the phrases that reflected feeling a lack

of focus were found in the control group, while nine (32%) were found in the EBPQ

group (Figure 11).

Figure 11

Discussion

The results from the professional searches indicate that using an EBPQ leads to more useful search results than not using an EBPQ. Conversely, these results indicate that not using an EBPQ is more likely to lead to a less organized search which, in turn, generates fewer useful search results. The results indicate that the time it takes to do the search in both modes is about the same. On average, there is roughly a three-minute difference between the EBPQ group and the control group search time averages. It is the time constraints in this search that make this three minute difference noteworthy. A three minute time savings cuts search time by nearly 25%. Qualitatively, using an EBPQ results in a wider search, better responses, and does so in less time.

There was a marked difference between the EBPQ group and the control group in the way the professional searcher felt about the searches in terms of ease or difficulty (referred to as the affective qualities of the specific searches). EBPQ searches tended to be seen as easier than control group searches. Thirty per cent of the EBPQ group phrases referred to the difficulty of the search as compared to 41% of the control group. Phrases such as "I wasn't sure where to look" or " I had no idea where to start" were common occurrences in the control group. Thinking of the ASK research discussed earlier in the literature review, it appears that the professional searcher, in a sense, did not know what was unknown in the difficult searches. The

more positive phrases describing the ease of the EBPQ searches suggest that the use

of the EBPQ may have helped to resolve the ASK. If a search "went smoothly," the

searcher was likely to feel more in control of the search than if she "wasn't sure where

to look." Perception of difficulty becomes less of an issue if an EBPQ is developed as

part of a search process. There were dramatically fewer phrases that referred to the

relative difficulty in the EBPQ group. Twenty-seven percent of the phrases referred to

the difficulty/complexity of the search in the control group, while only 13% of the

phrases referred to it in the EBPQ group.

With over half (59%) of the phrases culled from the all of the specific cases

discussing a focus or lack of focus, it can be concluded that the idea of focus was very

important to the search process in the study. Important results were found concerning

focus in two places. The EBPQ and control group specific case phrases were

composed of 41% and 5% feelings of focus respectively. Fifty-one percent of the

phrases noted a lack of focus in the control group, in comparison to 20% in the EBPQ

group. This is especially interesting because there is little difference in the ratio of

focus phrases to total phrases between the EBPQ group cases and the control group

cases. In short, a sense of focus was dramatically more present in the EBPQ group.

Case Studies

Comparing descriptions of searches identified as Case 22527 and Case 48360 best

illustrate the benefits that an EBPQ may provide for a search strategy. Case 22527

was in the EBPQ group, and Case 48360 was in the control group. As the requester

asked in the email in Case 22527:

> *What is the best resource for searching Florida newspapers from*
>
> *about 1985 to the present for references related to Hernando de Soto*
>
> *and the De Soto National Memorial at Bradenton, Florida? I am*
>
> *especially interested in articles spanning the years 1988-95 or so.*

An EBPQ question, "In searching Florida newspapers, where is the best place to look for articles written from 1988-1995 related to Hernando de Soto and the De Soto National Memorial?" was developed to guide the search. The professional searcher's recorded strategy went as follows:

> *I first looked in LexisNexis, as it is a major database for newspapers,*
>
> *but it turned out to be a little "too" major—regional newspapers are*
>
> *not indexed as well in LexisNexis. In fact, I wasn't able to find a good*
>
> *database to answer this request. Browsing through e-reference links*
>
> *from a search for "newspaper" on the e-reference links* [on the UNC
>
> Libraries website, http://www.lib.unc.edu] *for Area and Cultural*
>
> *Studies helped much more.*

After completing the search, these notes were recorded by the professional searcher:

> *The EBP question kept me focused…on what this search was for,*
>
> *especially when I wanted to satisfice, expanding the search to more*
>
> *years or [news]papers that were not from the region. Had I not been*

trying to answer my EBP question, I would have realigned my search

to look for recent articles about any national memorials in Florida,

written in any years. Instead of trying another search venue, such as

the e-resource linked, I would have made the articles in the database

"work." [sic]

This search took the full twenty minutes to complete, and in that time 48 search

results were found in four searches of LexisNexis and the E-Reference links

respectively.

As the user emails in case 48360:

Hi, I've been trying to find this answer: as I understand it, in an online

forum the content of one's posts is copyrighted by that individual. But

if that individual chooses to leave the forum, does he have any right to

his posts, i.e., can he demand that they be expunged upon his

departure?

Since this was in the control group, no EBPQ question was formed, and, perhaps

consequently, the strategy recorded by the professional searcher is in stark contrast to

the one reported above:

My strategy was very informal for this search: all I did was browse in

Google.

After completing the search, these notes were recorded:

I had no idea how to go about this search. I went to Google first, and

did a simple search for copyright. It took me about 15 minutes to click

through a few sites, trying different keywords and variations of

keywords, until I found an annotated bibliography that cited the site I

found the answer on. Also, I got sidetracked by a few news articles

during this search, and lost some time reading about a hacker who

broke into business school websites and showed applicants how to do

it. It was interesting, but not on topic. I basically stumbled on the

answer.

This search took seventeen minutes, and since solely Google was used in the search

process, millions of results were found in four different searches.

While both cases ended in finding resources that would make a useful

response for the user, the affective qualities of these searches vary greatly, and are

illustrative of the differences found between the EBPQ and control groups. A wide

variety of resources were searched in the EBPQ case, while only the Google search

engine was used in the control case. The focus described in the EBPQ case is very

different from getting distracted by news articles that only marginally related to

information policy—not even copyright.

Conclusions

This study, "Exploring the Use of Evidence Bases Practice Questions to

Improve Search Process," explores the potential application of evidence-based

practice to improving searches conducted by a professional searcher. By using an EBPQ, the professional searcher was able to more effectively search more resources, while reducing the amount of time spent searching. Focus while searching—to search for what is actually needed—improves when applying an EBPQ to a search. Simply put, knowing what to look for helps a searcher find it.

To best summarize the findings of the study, we go back to the research questions posed above:

1) Do EBPQ-based searches differ from searches that do not use this approach?

A difference was found between the EPBQ group and the control group, and such a difference may prove invaluable in an environment that increasingly asks users with information needs to do more with less—or, rather, more evaluation of more resources in less time. As shown above, an EBPQ helps a user search more resources and find more useful responses in a shorter amount of time than not using an EBPQ. Conversely, not using an EBPQ leads a user to search fewer resources and take more time doing so.

2) Will using an EBPQ-based strategy improve search results?

Asking an EBPQ did improve search results: a useful response was almost 60% more likely to occur within the EBPQ group than in the control group. Moreover, differences describing a sense of focus and ease of search in the EBPQ group point to the conclusion that using an EBPQ reduces a search's affective costs while making the search process more efficient. No significant difference was found between the EBPQ and control groups in terms of the number of search results. More study is necessary to support this finding; the search result numbers were very

difficult to study in the searches that employed the Google search engine. A better metric for counting results is needed in further study.

3) Can an EBPQ act as a structural code for the user to guide the search process?

The results of this study point to an answer of "yes" to this question. An EBPQ is always formed and used around a structure that includes in its major components setting, population, action/idea, alternative to the action/idea, and outcome/evaluation. It is this structural code that acts as a model to the user. Rather than relying on structural codes imposed on a user by research tools, the user customizes a structural code that works for him/her. Generally, the results of this study call for more research to be done on user-generated structural codes.

Limitations and Further Research

Limited time and resources meant that only one professional searcher conducted the searches (the researcher). Moreover, these limitations kept the sample size to thirty cases. Though the results of this study are promising, there is much room for expanded research in this area. Future directions include not only replicating this study with multiple searchers, but also developing best practices for instructing users to use EBPQs in searching for themselves. It is possible that using an EBPQ may not only help professional searchers, but also end user searchers themselves. Other forms of user-developed structural codes also deserve more study. This exploratory research is one step in the further development of new approaches aimed at improving search services within libraries and information centers. There is a need for more research to discover how using an EBPQ may affect the reference interview,

other reference services, bibliographic instruction, and how librarians and information

professionals themselves think about searching. Another future direction of this work

is to teach library users to develop EBPQs, and study how these users may use

EBPQs when performing searches. Different types of users, such as professional,

non-professional, students, adult learners, *etc*., could be studied to determine which

groups may benefit from using an EBPQ. If using an EBPQ is beneficial to these

groups, more study must be done to determine best practices for teaching users to use

an EBPQ.

A limitation of systems was also a factor in this study. Only resources

accessible online from a remote location were used to respond to the sample cases.

While this use of only online resources is appropriate when responding to questions

posed over email and the web, it is unknown what different effect using an EBPQ

may have when searching print resources or while helping a user face-to-face and in

"real time". A future direction may be to study how users and information

professionals use an EBPQ when different types of resources are involved.

Summary

Evidence Based Practice (EBP) is a relatively new approach professionals are

using to cope with the ever-growing body of literature within their fields. The goal of

EBP is to effectively use this body of literature to improve professional practices,

ensuring high quality services. A major component of EBP is asking a focused, well-

built question to guide the search process. Within this study, this focused, well-built

question is called the Evidence Based Practice Question (EBPQ). This paper reports the findings of an exploratory study that examines the effect of using an EBPQ to respond to reference questions emailed to a university library reference desk. A purposive sample of 30 reference emails was randomly divided into two groups, the EBPQ group and the control group. The professional searcher employed the same search process to each emailed reference question, with one difference: the EBPQ group searches were guided using EBPQs, and the control group's responses were not. The results indicated that searches guided by using EBPQs are more focused, apply more resources to the search process, and take less time than searches not guided by using EBPQs. These conclusions lead to further research in the use of EBPQs to guide search processes.

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