Measuring Graduating M.S.W. Students' Knowledge of the Steps of Evidence-Based Practice

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MEASURING GRADUATING M.S.W. STUDENTS' KNOWLEDGE OF THE STEPS OF EVIDENCE-BASED PRACTICE

by

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Knowledge of evidence-based practice (EBP) is essential to social workers entering the workforce. The literature review revealed no studies that have measured the knowledge students have of the steps of EBP in the final semester of their master’s of social work (M.S.W.) degree programs.

The purpose of this study was to administer a newly validated instrument to graduating M.S.W. students to measure their knowledge of the steps of EBP. Eighty-six students in four schools in Michigan completed the instrument and scored a mean of 6.23 out of a possible score of 15. An ANOVA showed no statistically significant difference in mean scores between schools. Individual performance was graded on a percentage based grading scale using letter grades A through E. Seventy-five (87%) of the 86 students scored a grade of E (< 57% correct) on the instrument. Correlation analyses showed that students who took a course with EBP as a topic and those with higher GPAs scored higher on the instrument, but the majority still did not earn passing grades.

The study showed that M.S.W. students graduating in the winter (April/May) semester of 2009 did not perform well on a validated instrument to measure knowledge of the steps of EBP. These results indicate a need for attention to teaching the steps of
EBP in M.S.W. programs. The results also provide preliminary evidence that integrating EBP into courses as a topic may be an effective strategy to increase the level of knowledge students have of the steps of EBP.

This research demonstrated a need for more instruction regarding EBP in graduate programs. It also contributed to the validation of an instrument to measure M.S.W. students' knowledge of the steps of EBP that can be used in the field. As M.S.W. programs integrate EBP into their curricula, it is important that they also measure the outcomes of students' learning to gather evidence regarding the effectiveness of the instruction and potential need for modification.
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CHAPTER I

INTRODUCTION

The field of social work is at a crossroads especially in the provision of mental health services. Will it continue to be a field guided by authority and tradition (Gambrill, 1999) or will it lead the industry and become a profession guided by the best available evidence (Gibbs, 2007)? The President’s New Freedom Commission on Mental Health (2003) and Surgeon General (1999) have encouraged the mental health system to become a system where persons with mental illness have access to and are provided services that are supported by evidence (evidence-based practice). However, 92% of state mental health directors in 2007 indicate an inadequately trained workforce as a barrier to implementing evidence-based practice (EBP) in mental health (NRI, 2007).

Social workers are in a key position to impact the transformation of the mental health industry because social workers provide more mental health services than any other discipline and more social workers are training to work in mental health than any other domain (NASW, 2005). By becoming knowledgeable of EBP, social workers would be responding to the changing needs and demands of the mental health industry. However, to date there have been no studies found that measure the knowledge graduating Masters of Social Work (M.S.W.) students have of the steps of EBP. This research seeks to measure the knowledge graduating M.S.W. students have of the steps of EBP in the final semester of their M.S.W. program.
The training that M.S.W. students receive is guided by the education policies and standards of the Council on Social Work Education (CSWE). These standards mandate the content of the courses that are offered to M.S.W. students (CSWE, 2002) and are the key to ensuring that M.S.W. students receive training in the steps of EBP.

The CSWE, which accredits schools of social work in the U.S. and Canada, in its Education Policies and Accreditation Standards (EPAS) mandated that universities prepare all graduating students in master’s programs to demonstrate that they have the ability to “evaluate research studies, apply research findings to practice, and evaluate their own practice interventions” (Section 3.0: Foundation Program Objectives, Objective 9) (CSWE, 2002, p. 8). The EPAS also mandated that practice course content should include “identifying, analyzing, and implementing empirically based interventions . . .” (Section 4.5: Social Work Practice). Students should also be able to “develop, use, and effectively communicate empirically based knowledge, including evidence-based interventions. Research knowledge is used by students to provide high-quality services; to initiate change; to improve practice, policy, and social service delivery; and to evaluate their own practice” (Section 4.6: Research) (CSWE, 2002, p. 10). The preamble to the EPAS also indicates that scientific inquiry is included in teaching skills to students. Universities must meet these standards and all other standards included in the EPAS to become and remain accredited (CSWE, 2002). Therefore, when practice students graduate from Masters of Social Work (M.S.W.) programs accredited by CSWE, they should be prepared to implement Evidence-Based Practice (EBP). However, no research is currently available that demonstrates the level of knowledge graduating M.S.W. students have of the steps of EBP.
To ensure that M.S.W. students receive training in EBP, Gibbs (2007), a professor of social work and author of peer-reviewed articles and textbooks on EBP, in his keynote address at the 17th National Symposium on Doctoral Research in Social Work challenged schools of social work to modify how research courses are taught or to add a course on EBP to the curriculum to ensure students learn to utilize EBP. He indicated that the role of the professor is to teach the students to make better judgments and better decisions and that M.S.W. students need to be able to apply research to practice (Gibbs, 2007).

EBP is a process of applying five steps to guide practice decisions to ensure that clients receive interventions that have been found to be effective through scientific evidence. These five steps include: asking a researchable question, acquiring the best evidence to answer the question, critically appraising the evidence, applying the evidence to practice, and evaluating the outcomes (Gibbs, 2003; Howard, McMillen, & Pollio, 2003; Magill, 2006; Mullen, Bellamy, Bledsoe, & Francois, 2007; Straus, 2006; Gambrill, 2007; Shaneyfelt et al., 2006; Drake, Hovmand, Jonson-Reid, & Zoyas, 2007; Rubin & Parrish, 2007). It is important to note that evidence-supported interventions (ESI), evidence-based interventions (EBI), evidence-based treatments/therapies (EBT), and evidence-based practices (EBPs) are often used as equivalent in the literature, all referring to interventions or treatments that have evidence to support their effectiveness (Woody, D’Souza, & Dartman, 2006). ESIs are also associated with a likelihood of positive outcomes (Rubin & Parrish, 2007).
**Historical Development EBP**

EBP in social work was derived from evidence-based medicine (EBM) and there are three historical events that established the foundation for EBM. The Flexner Report, in 1948, created the first framework for medical education that was based on science. In 1948 the first random controlled trial (RCT) was conducted, which focused on the efficacy of streptomycin to treat tuberculosis. The third significant event was the formation of the Food and Drug Association, with the passing of the Pure Food and Drugs Act in 1906, as well as other government organizations with a role to test the safety and effectiveness of medical interventions (Leff, 2002). There were several acts and amendments that followed. For example, the passing of the 1962 Kefauver-Harris drug amendments required manufacturers to follow more rigorous standards regarding safety of medications. This act standardized randomized, placebo-controlled double blind trials (Leff, 2002) and this scientific rigor became the gold standard to establish efficacy of medical treatments (Leff, 2002; Gilgun, 2005).

The term *EBM* was first used in the EBM Working Group in 1992, a group of medical educators, scientists and physicians in Canada and the US (Evidence-Based Medicine Working Group, 1992; Gilgun, 2005). The term *EBM* in medicine and the term *EBP* in social work have similar meaning and essentially the same steps that are applied to clinical practice.
EBP in Mental Health

The development of evidence-based practices (EBPs) in mental health was a focus in social work during the 1970s and 1980s, and during the late 1980s and into the 1990s evidence was developed for interventions to treat many of the most common mental health disorders (Bellamy, Bledsoe, & Traube, 2006) and studies were being funded by federal agencies such as the National Institute of Mental health (NIMH) (Elkin et al., 1989). Over the past 10 years the number of articles about EBP interventions and the process of EBP have also risen in the disciplines involved in treating mental health issues (Bellamy et al., 2006).

In 1997, the Substance Abuse and Mental Health Services Administration (SAMHSA) developed a National Registry of Evidence-based Programs and Practices (NREPP) to compare model programs (NREPP, 2007). In 1999, the Surgeon General, after a review of research in mental health, challenged the mental health community to expand the supply of EBP services because of a shortage of effective mental health services nationally (Surgeon General, 2000). The President's New Freedom Commission on Mental Health (2003), established in 2002, recommended that the mental health system be transformed and that evidence-based practices be widely used.

Social workers are in a key position to impact the transition of the mental health system because social workers provide more mental health services than any other discipline and there are more M.S.W. students studying to practice mental health than any other domain according to the National Association of Social Workers (NASW, 2005). Results of a NASW survey, administered to clinical social workers in 2004, indicated that
37% work in mental health and another 13% work in child welfare and 13% in medical health (NASW, 2005). Also the National Institute of Mental Health (NIMH, 2006) indicated that 45% of mental health professionals were social workers with estimates as high as 60% to 70% (Proctor, 2004). Social workers play a central role in the provision of mental health services; therefore, social work research needs to focus on practice patterns and effectiveness of interventions (Proctor, 2004). In social work the effectiveness of interventions, although not yet called EBP, was an issue as early as 1973 (Fisher, 1973). In a 1973 publication of a review of 70 case work studies, Fisher concluded that social case work services were ineffective.

There has been movement toward transforming the mental health system to widely utilize EBP for the past decade. For example, Oregon, through Senate Bill 267, has mandated the use of EBP within the mental health system by requiring state funds to be used for EBP services (Oregon Legislative Assembly, 2003). Federal agencies are also encouraging this transition and CSWE has integrated steps of EBP into its EPAS. Therefore, it has become necessary for social workers, studying to practice in the mental health field, to learn about the steps of EBP in their M.S.W. programs.

From EBM to EBP

Sackett, Richardson, Rosenberg, and Haynes (1997) proposed five reasons to utilize EBM. First, new types of evidence are being generated that can increase practitioners' ability to help clients. Second, although it is clear that practitioners often need this evidence daily, practitioners usually do not get it. Third, practitioners' current knowledge depreciates over time. Fourth, traditional continuing education programs do
not improve practitioner performance. Fifth, this new approach to learning had been shown to keep clinicians up to date.

Sackett and colleagues identified these reasons for the medical field to utilize EBM; however, they are also relevant to social work. Gibbs (2003) presented four reasons for adopting EBP in social work. First, it is consistent with social work goals and ethics. Second, EBP links research and experience which guide social work practice. Third, EBP supports efforts to integrate research into practice, and fourth, EBP provides a common language across the disciplines involved in the helping professions. While these four reasons to adopt EBP into social work are important, practitioners also have an obligation to provide social work clients with the most effective interventions to address the problems they present to practitioners.

Evidence-Based Practice Defined

Sackett, Richardson, Rosenberg, and Haynes (1997) define EBM as "the conscientious, explicit and judicious use of current best evidence in making decisions about the care of individual patients. The practice of evidence-based medicine means integrating individual clinical expertise with the best available external clinical evidence from systematic research" (p. 72).

Gibbs (2003) defines EBP for social workers as:

Placing the client's benefits first, evidence-based practitioners adopt a process of lifelong learning that involves continually posing specific questions of direct practical importance to clients, searching objectively and efficiently for the current best evidence relative to each question and taking appropriate action guided by evidence. (p. 6)
EBM, according to Sackett and Rosenberg (1995), comprises five steps:

(i) convert these information needs into answerable questions
(ii) track down, with maximum efficiency, the best evidence with which to answer them (whether from the clinical examination, the diagnostic laboratory, the published literature, or other sources)
(iii) critically appraise that evidence performance for its validity (closeness to the truth) and usefulness (clinical applicability)
(iv) apply the results of this appraisal in our clinical practice
(v) evaluate our performance. (p. 3)

These five steps have been utilized as the five steps of EBP in social work (Gibbs, 2003; Howard et al., 2003; Magill, 2006; Mullen et al., 2007; Straus, 2006; Gambrill, 2007; Shaneyfelt et al., 2006; Drake et al., 2007; Rubin & Parrish, 2007); however, Gibbs (2003) added two additional step, the first to be motivated to learn EBP and the last to teach others about EBP. Gibbs further provided these steps as an operational definition of EBP:

Step 1. Convert information need (prevention, assessment, treatment, risk) into an answerable question.
Step 2. Track down the best evidence necessary to answer the question.
Step 3. Critically appraise the evidence for its validity (closeness to the truth), impact (size of the effect), and applicability (usefulness in our practice).
Step 4. Integrate critical appraisal with our practice experience, with a client’s strengths and values, and with circumstances that can affect how we approach a problem in practice.
Step 5. Evaluate effectiveness and efficiency in exercising steps 1 to 5 and seek ways to improve them next time.
Step 6. Teach others to follow the same process. (p. 146)

The above definition, which includes the five (step 1 through 5 above) steps of EBP, are the steps of EBP cited most often in social work literature and will be utilized for the purpose of this study. Also, the steps of EBP utilized in social work match the steps utilized in EBM.

EBP, according to Gilgun (2005),
rests on four cornerstones: (1) research and theory; (2) practice wisdom, or what we and other professionals have learned from our clients, which also includes professional values; (3) the person of the practitioner, or our personal assumptions, values, biases, and world views; and (4) what clients bring to practice situations." (p. 52)

Hall (2008) further suggested that EBP focuses on reducing wide variations in practice and attempts to eliminate practice that is ineffective while moving toward best practice to reduce cost and improve the quality of practice. In child welfare, EBP will guide practice to desired client outcomes (Blome & Steib, 2004). EBP must be a core activity of practitioners and it is suggested that more than one EBP expert will be needed in each organization to successfully implement EBP (Evidence Network, 2007). While they may frame EBP from a different perspective, all of these scholars and resources indicate the importance of EBP to practitioners and the clients being served.

**Lack of Consensus**

While utilizing the steps of EBP may improve social workers ability to provide effective services to their clients, the field of social work has not come to a consensus on the definition of EBP (Howard et al., 2003; Rubin & Parrish, 2007; Jensen, 2007; Springer, 2007) and what constitutes sufficient evidence for a treatment to be considered EBP (Rubin & Parrish, 2007). For example, Rubin and Parrish, in their survey of social work faculty, utilized two definitions of EBP: “it is a process that includes locating and appraising credible evidence as a part of practice decisions; it is a way to designate certain interventions as empirically supported under certain conditions” (p. 112). The study showed a lack of consensus on the definition of EBP with faculty. The Rubin and Parrish study also showed a lack of consensus in what constitutes adequate evidence to determine
an intervention effective. For example, 13% of the faculty in the study considered anecdotal case reports as sufficient evidence to teach an intervention as evidence-based and 23% would teach an intervention as evidence-based if considered evidence-based by a prestigious professional organization (Rubin & Parrish, 2007). The Rubin and Parrish study demonstrated the lack of consensus, about both the definition of EBP and what constitutes adequate evidence to determine an intervention to be evidence-based, among social work faculty. This lack of consensus about the definition of EBP and what evidence is necessary to determine that an intervention is effective may lead to inconsistent training of M.S.W. students nationally.

**Importance of the Client in EBP**

Bilsker and Goldner (2000) framed the discussion in terms of core virtues of the evidence-based paradigm that includes “questioning of unfounded beliefs, rigorous scrutiny of methodology and critical appraisal of proposed treatments” (p. 664). They also indicated that clients should be offered choices of evidence-based approaches when available and the client’s role in the treatment process should be clear. Choices should also be made that fit within the client’s context, because they are partners in their care (Bilsker & Goldner, 2000). Client involvement may impact the intervention outcome if they have a role in decision-making. Clients should also be informed of the risks and benefits or a variety of interventions that are available to address their presenting complaint before procedures are implemented (Bilsker & Goldner, 2000), which is consistent with the NASW code of ethics (NASW, 1999). When proven options along with their risks and benefits are presented to the client, better choices can be made by the
client and practitioner (Starin, 2006). Social workers also have the possibility of doing harm as well as good and should know if evidence exists to aide in decision-making and be able to seek the intervention most useful to the client (Gambrill, 1999). The client’s participation in the EBP process is essential if social workers are to address the problems clients seek to solve and to meet practitioners’ ethical obligation to provide informed consent.

Positive client outcomes are essential to the effectiveness of social work interventions. Outcomes management focuses on efficacy and effectiveness and social workers should use EBP to achieve outcomes that are desired by the client (Gambrill, 2003). EBP interventions have also been shown to improve client functioning (Gilgun, 2005). The importance of the client has been central in social work and is a key component of EBP. EBP is seen by some as the fulfillment of social workers obligation to the clients served. It is essential that social workers provide the most effective services available to address the problems that clients present and social workers must demonstrate that the services they are providing are effective. While many social work scholars have concluded that applying the steps of EBP to practice is necessary to ensure effectiveness of interventions and outcomes that meet the client’s needs, the field has not adopted this as standard practice.

**Ethical Issues with EBP**

The National Association of Social Work (NASW) code of ethics, approved 1996 and revised by the 1999, which guides social work includes in section 5.02 Evaluation and Research “(c) Social workers should critically examine and keep current with
emerging knowledge relevant to social work and fully use evaluation and research evidence in their professional practice” (NASW, 1999, p. 1).

The NASW (1999) state in their code of ethics that clients, to give informed consent, should be presented with the empirical evidence that the services they will receive are the most effective to address their presenting problem. If no effective treatment is available based on the scientific evidence, the social worker is to inform the client and consider client values in determining a course of treatment. Based on the literature review, it is currently unknown if social workers have acquired the knowledge to follow these guidelines in practice. Mental health advocacy agencies also assert that persons with mental illness have a right to have access to EBP services.

The client’s knowledge, characteristics, preferences, circumstances, and actions are essential to the process. The practitioner’s knowledge of the local context as well as their ability to search for and analyze the evidence and apply it to practice is also important.

EBP also moves social work toward an ethical obligation to clients and students and away from an authority-based profession (Gambrill, 2003). Social workers, in practice, have an ethical obligation to inform clients and to involve them as participants in their care, to do no harm as they help clients, to ensure competence and accountability, to promote social justice and to become a lifelong learner (Gambrill, 2007). Honesty and transparency are emphasized in EBP as are client values, concerns, characteristics, and circumstances. Social work values are committed to informed consent, collaboration with clients, empowerment, and self-determination (Rubin & Parrish, 2007), all consistent with EBP. Social workers have an obligation to offer interventions to clients that have
been found to be effective and become skilled in providing these interventions (Thyer, 2007). Social workers also have an obligation to communicate the evidentiary base for any recommendations made to clients as well as alternatives (Howard, Allen-Meares, & Ruffolo, 2007). The knowledge and skills of both the practitioner and the client are important in the treatment process.

Educators have and ethical obligation to teach students to become lifelong learners, to stay current and be honest brokers of knowledge, to ensure students are informed and participate and maintain competence, and to assist students in developing decision-making skills (Gambrill, 2007). Educators also have an obligation to teach interventions that have the best chance to help clients (Rubin & Parrish, 2007). Teaching interventions that have been shown to be effective is important to the process of teaching EBP. It is ethically important to engage in EBP and if social workers do not employ EBP with the clients they serve, they may not be engaging in ethical practice (Gambrill, 2006). These scholars indicate that EBP is important to ethical social work. Social workers have an ethical obligation to secure informed consent from their clients (NASW, 1999). To provide informed consent, clients need to know what alternatives are available to address their problem and the effectiveness of the alternatives. Faculty plays a central role in teaching social workers about their ethical obligation to utilize effective interventions. Therefore, it is important that social work faculty demonstrate support for EBP in social work education.

The CSWE EPAS requires foundation curriculum content be relevant to the ethics of the social work profession. They further require that social work programs integrate content about the values and principles of ethical decisions, outlined in the NASW code
of ethics, into the curriculum. The EPAS indicates that field education, for social work students, should reinforce the ethics of the profession (CSWE, 2002). The EPAS does not, however, link EBP to ethical decision making and does not require social work programs to teach EBP as the ethical responsibility of social workers. While some scholars indicate that utilizing EBP in practice is the ethical responsibility of social workers (Gambrill, 2006, 2007; Howard et al., 2007; NASW, 1999; Rubin & Parrish, 2007; Thyer, 2007), the evidence suggested that social workers are not utilizing EBP in practice extensively (Weismann et al., 2006).

The National Alliance on Mental Illness (NAMI, 2003) identified as its first strategic goal in their 2004-2005 strategic plan that persons with mental illness have access to services that are evidence- and science-based and mental health services need to be improved and support and educate both the client and their family. They foresee that there will be a time when EBP is delivered to all persons with mental illness (NAMI, 2003). For this to occur, M.S.W. students must acquire the knowledge of the steps of EBP. Persons with mental illness have a right to receive services that have been shown to be effective (Drake et al., 2001); however, most public mental health programs do not provide EBP services to the majority of their clients and the majority of state mental health directors have identified an untrained workforce as a barrier to implementing EBP (Cody, 2007). EBP is essential to ethical social work practice if social workers are to ensure that clients provide informed consent and are offered the most effective interventions to address the problems they present to social workers.
Skills and Competencies Needed to Implement the Steps of EBP

Goldner and Bilsker (1995) identify three skills that are required to utilize EBP—the skill to search for empirical studies and reviews (step 2 of EBP), determine the quality of the design and interpret the findings (step 3 of EBP), and determine if the literature supports a specific treatment approach (step 3 of EBP). The Evidence Network of the Economic and Social Research Council indicates the skills needed for EBP, similar to Goldner and Bilsker, are the ability to ask questions relevant to practice, acquire quality evidence, appraise research, and understand the findings and apply them to practice (steps 1 through 4 of EBP) (Evidence Network, 2007). Gambrill (1999) identifies EBP skills needed by social workers as the ability to ask questions that are answerable, identify information needed to answer the questions, find the best evidence to answer the question, appraise the evidence for validity and usefulness to the current circumstance, and apply the results with the clients they are serving (steps 1 though 4 of EBP). These skills identified by these scholars and organization have translated the steps of EBP into abilities needed by social workers. Additionally assessing the outcome effectiveness of interventions is an important component (step 5 of EBP) of the steps of EBP.

It has also been recommended that social workers develop practice competencies (Falender et al., 2004; Gambrill, 2001; Jensen, 2007; Volland, Berkman, Phillips, & Stein, 2003; Wayne, Raskin, & Bogo, 2006). By focusing on competencies, students are evaluated based on a common standard rather than rankings. Gambrill (2007) indicated 16 competencies needed by social workers to implement EBP. Falender et al. (2004) also recommended focusing on competencies, including knowledge, skills, values, and meta-
knowledge. There is much overlap and some differences in these descriptions of skills and competencies needed to apply EBP. If social workers are to utilize EBP in their practice, they will need to acquire these abilities and competencies and obtain knowledge of the steps of EBP. These scholars have outlined the skills and competencies necessary to implement the steps of EBP. However, CSWE, in their 2002 EPAS, did not mandate these abilities and competencies, which may impact the content of courses students receive in their M.S.W. program as well as what they are taught about EBP.

**Teaching EBP**

Social work faculty may be able to learn from other disciplines about teaching EBP. The medical community has been involved in the teaching of EBM to physicians for several years and nursing has followed the EBM procedures (Evidence Network, 2007). Other disciplines have also required integration of EBP into education standards (psychiatry, psychology, and nursing) and require graduates to develop these and other competencies (APA, 2000; ACGME, 2007; NLNAC, 2006). For example, to be accredited, psychiatric residency programs must teach a specific EBP treatment model and provide supervision to the residents for the development of skills in utilizing the specific EBP model. The resident’s supervisor must also be an expert in the use of the EBP model. Cognitive Behavioral Therapy (CBT) is an EBP treatment model used by many residency programs to ensure that the residents have learned an EBP model. They also receive training on acquiring and appraising evidence (Weissman et al., 2006).

Gibbs (2007) has challenged universities to integrate EBP into the curricula of schools of social work and to consider including an EBP course. Gambrill (1999), another
leader in the transition to EBP, posed a number of questions to educators in the field of social work related to the dissemination of knowledge that leads to better client outcomes and developing effective practitioners. Educators play a central role in preparing M.S.W. students entering the workforce to utilize the steps of EBP.

**Teaching Strategies**

There are a number of teaching strategies that have been recommended to effectively teach EBP in schools of social work. EBP teaching begins with a focus on the client and the problems the present to social workers (Goldner & Bilsker, 1995). Problem-based learning (PBL) is one teaching strategy that has been found to be effective in teaching EBP (Tian et al., 2009). The foundation of this strategy is real life problems that place a client focus on EBP (Goldner & Bilsker, 1995). Drake et al. (2007) also advocate utilizing PBL and that educators ask questions that are client-based from the caseloads of the students. This puts the focus on the learner’s needs in real time (CEBM, 2007).

It has been suggested that students should learn specific EBIs and that social work faculty should adopt the process of EBP (Thyer, 2007). This is similar to the expectation of psychiatric residents who are required to learn a specific EBI in their residency program. Providing continuing education including access to data bases and systematic reviews is also important to social workers (Thyer, 2007). Didactic training may also aid in learning evidence-supported treatments (EST) (Rubin & Parrish, 2007). The Weismann et al. (2006) study indicated how effective this kind of training can be, as found with psychiatric residents. While teaching specific EBIs to social workers in M.S.W. programs
may be recommended, research had not been found that this is an effective way for M.S.W. students to learn to apply the steps of EBP. Also the specific EBI they learn may not be relevant to the clients they serve.

In teaching EBP professional values and the philosophical approaches must also be addressed. EBP must be seen by both faculty and students as valuable and feasible. Faculty must also be able to present information to the students when it is needed which may increase retention (Goldner & Bilsker, 1995). This assumes a partnership between the teacher and the learner and that the learner must be ready to accept the information for teaching to be effective. Clinical judgment is also necessary to make good clinical decisions along with best available evidence. It is the role of the teacher to develop the clinical judgment in students along with the ability to make decisions (Gibbs, 2007)

Faculty, field instructors, and students must collaborate to ensure effective learning occurs in M.S.W. programs. It is also necessary to study and evaluate which dissemination approaches that work best and lead to effective practice decisions. Dissemination strategies that ensure usage of research in practice are important to social work (Waddell, 2001). A more collaborative model is needed that involves practitioners and policy makers who work together to apply research to practice. Educators are needed who know both the clinical setting and research to effectively disseminate knowledge. Faculty must not only teach students to utilize research but also encourage them to continue to utilize research to impact practice and meet their ethical responsibility. To accomplish this, social workers and other practitioners need easy access to systematic reviews of research studies to inform practice (Waddell, 2001).
Practitioners rely on critical thinking to effectively apply knowledge to practice. Schools of social work must ensure that students learn to think critically. Students must be able to assess the findings and make inferences to apply the results to practice. Critical thinking is necessary to make interpretations of the research (Gibbs, 2007). To be effective educators, faculty must be able to understand both research and practice to effectively teach practice courses. Also, faculty must utilize effective strategies to present EBP to social work students (i.e., problem-based learning) and then evaluate the effectiveness of their teaching. For M.S.W. students to be effective practitioners they must become lifelong learners, be motivated to use EBP, have easy access to research evidence, and apply EBP to practice.

**Importance of This Study**

Studies have shown that social workers provide more mental health services than any other discipline and more M.S.W. students are studying to practice in mental health than any other profession (NASW, 2005). Several federal agencies have become involved in the transformation of the mental health system to EBP in the past decade, including SAMHSA (1997), the Surgeon General (1999), the President’s New Freedom Commission on Mental Health (2003), and the National Institute of Mental Health (NIMH, 2006). Other disciplines have required integration of EBP into education standards (psychiatry, psychology, and nursing) and have required students to develop these and other competencies (APA, 2000; ACGME, 2007; NLNAC, 2006).

Advocacy organizations are seeking access to EBP services for their constituents (NAMI, 2003; NMHA, 2006). In the NASW (1999) code of ethics, social workers are to
provide clients informed consent which includes informing them about what interventions have been shown to be effective to address their presenting problem. Gibbs (2007) in his keynote challenged professors to conduct studies to determine if their students are acquiring the knowledge and skills necessary to utilize the steps of EBP.

Research, however, suggests that social workers do not use evidence when making practice decisions (Gambrill, 2003). If faculty does not teach social work students to understand EBP and the client's role, social workers may not be able to close the gap between their ethical obligation and the accreditation standards (Gambrill, 2003).

Because the majority of mental health services are provided by social workers, it is important for social workers to enter the workforce with the skills and knowledge necessary to implement the steps of EBP in practice. This research will seek to measure how effective social work faculty has been related to teaching the steps of EBP.

The CSWE (2002) requires some steps of EBP be integrated into the curricula of accredited M.S.W. programs. While there is widespread emphasis on utilizing EBP by a variety of accrediting bodies, no research has been found that measures the effectiveness of accredited schools of social work in disseminating knowledge of EBP to its graduating M.S.W. students.

Social workers are positioned to have the greatest impact on the transformation of the mental health system to EBP. To achieve this, graduating M.S.W. students must be prepared to implement the steps of EBP in their practice to respond to the complex needs of their clients (Gambrill, 2001). However, states report the lack of adequately trained workforce as a barrier to implementing EBP in mental health. Therefore, it is essential that M.S.W. students enter the workforce with knowledge of the steps of EBP.
There is widespread support for utilizing EBP in social work especially in mental health by scholars in social work, federal agencies, advocacy organizations, accrediting bodies accrediting mental health agencies, groups that support social work research (IASWR, 2001; SSWR, 2004), NASW, and CSWE. Research shows that more mental health services are provided by social workers than any other discipline, and more social work students are studying to work in mental health than any other field. Therefore, social workers are in a key position to transform the mental health system to a system guided by EBP.

This research seeks to develop and validate and instrument that can be used by the field of social work to measure student knowledge of the steps of EBP. This research further seeks to determine if graduating M.S.W. students have acquired knowledge of the steps of EBP.

**Research Question**

The primary question to be answered in this research is: How well do students perform on a validated measure of knowledge of the steps of EBP in the last semester of their M.S.W. program?
CHAPTER II

LITERATURE REVIEW

Review Process

A literature review was completed using Articles First, ProQuest, InfoTrac, Wilson Select, Scopus, Medline, and PsycInfo databases. The search terms used were: evidence-based practice, social work, social work education, empirically supported treatments, empirically supported interventions, and social work curriculum. All abstracts of articles that included these search terms were reviewed and articles that were related to EBP, social work, or social work education were selected. The references in the articles were also reviewed for additional relevant literature. References that cited the above-mentioned articles were also reviewed for relevance. Articles related to evidence-based medicine were reviewed to develop a history of EBP, which began in the medical field, as well as to compare and contrast social work and other disciplines.

The World Wide Web was also searched using the same search terms and relevant sites were reviewed for information regarding EBP. The Council on Social Work Education website was reviewed for accreditation education policies and standards (EPAS) for master’s programs in social work. State mental health websites that were reviewed were Oregon, Hawaii, and New York. These websites were used to identify evidence-based programs that have been accepted as meeting criteria set by the states as evidence-based. Other websites that were reviewed were the Surgeon General, the
President's New Freedom Commission on Mental Health, the Substance Abuse and Mental Health Services Administration, Agency for Health Care Research and Quality, the National Institutes of Mental Health, National Alliance on Mental Illness, National Mental Health Association, Mental Health America, Cochrane Library, Campbell Collaboration, SAMHSA's National Registry of Evidence-based Programs and Practices, Joint Commission on Accreditation of Health Care Organizations, Council on Accreditation and Council on Accreditation of Rehabilitation Facilities, National Association of Social Workers, American Psychological Association, Center for Evidence-Based Medicine, Institute for the Advancement of Social Work Research, Robert Wood Johnson Foundation, and the Society for Social Work.

The following studies were reviewed that were related to EBP, social work, and social work education. Bellamy, Bledsoe, and Traube (2006) interviewed experts and completed literature reviews on EBP and social work. Shaneyfelt et al. (2006) reviewed instruments for evaluating EBP in education. Weissman et al. (2006) surveyed deans and training directors of social work programs and other disciplines. Rubin and Parrish (2007) surveyed social work faculty regarding their attitudes about EBP. Additional studies were also found and reviewed focusing on field education (Edmond, Megivern, Williams, Rochman, & Howard, 2006) and psychotherapy education (Ravitz & Silver, 2004). One study was found that focused on measuring the level of student knowledge of one of the steps of EBP (appraising the evidence) (Smith, Cohen-Callow, Harnek Hall, & Hayward, 2007). One study was included that was conducted by the author of this dissertation that identified an untrained workforce as a barrier to the implementation of EBP in public mental health settings nationally (Cody, 2007). No research was found that focused on
measuring the knowledge that graduating M.S.W. students have related to the steps of EBP, which is the focus of the current research. Two studies were reviewed that were utilized to develop the measurement instrument for the current research. Fritsche, Greenhalgh, Falck-Ytter, Neumayer, & Kunz (2002) developed an instrument to measure medical resident knowledge of EBM, and Gerrish et al. (2007) surveyed nurses to determine their attitudes and perceptions of EBP.

Support for EBP

The Surgeon General (1999) identified that research evidence is important in demonstrating the effectiveness of treatments for mental health. The President's New Freedom Committee on Mental Health (2003) suggests that the mental health system needs to be transformed to include the use of EBP models. Goal 5.2 of that report was one of the four recommendations the commission made to transform the system. It states, “Advance evidence-based practices using dissemination and demonstration projects and create a public-private partnership to guide their implementation” (p. 13). The National Institute of Mental Health (NIMH), Division of Services and Intervention Research (DSIR) has EBP as one of its priorities (National Advisory Mental Health Council, 2003) and suggests that policymakers in state and local mental health need more access to research results (National Advisory Mental Health Council behavioral Science Workgroup, 2003). The NIMH is also focusing efforts on finding ways to ensure providers use best (proven) treatments (Kirschstein, 2000). The Substance Abuse and Mental Health Services Administration (SAMHSA) instituted a national registry of evidence-based programs and practices (NREPP, 2007) that is a searchable database of
evidence-based interventions. SAMHSA has funded a number of initiatives including the Addiction Technology Transfer Center (ATTC) network (AATC, 2006) to disseminate up-to-date research to the treatment community. SAMHSA has also developed tool kits for five evidence-based programs to help providers implement these programs (SAMHSA, 1997). The Evaluation Center at the Human Services Research Institute (HSRI) has an EBP program that provides information on EBPs (The Evaluation Center, 2007). The Center for Substance Abuse Preventions (CSAP) prevention registry provides information on prevention programs in substance abuse (CSAP, 2007). In 1997, the Agency for Health Care Policy and Research began an initiative to establish 12 EBP Centers (AHRQ, 1997). These centers develop reports and technology assessments relevant to EBP. This agency is now known as Agency for Healthcare Research and Quality (AHRQ) (Leff, 2002; NREPP, 2007). While information is currently limited, these initiatives offer resources to practitioners, consumers, policy makers, administers, teachers, students, and others interested in EBP information.

The National Association of State Mental Health Directors National Research Institute (NRI) (NRI, 2009) has been surveying state mental health administrators since 2002 to assess the implementation of EBP. They also provide resources and links to EBP resources (Leff, 2002). While this list includes many of the major players, it was not to be construed as a complete list as new resources are being developed often and are also being developed internationally.

Advocacy organizations for persons with mental illness demand that their constituents have access to EBP interventions. The National Mental Health Association (NMHA)
recommends that MHA leaders, mental health consumers, and family members actively participate in ongoing efforts to implement evidence-based practices throughout the country. This involvement is critical to ensuring that services and supports that effectively respond to consumer and family needs, are implemented in a way that is consistent with the particular intervention's design, and are sustained over time. (NMHA, 2004, p. 1)

The NMHA also supports EBP to promote effective care related to Medicaid reform (NMHA, 2005). The NMHA has as a plan to develop a more comprehensive analysis of EBP and its implication for policy (NMHA, 2004). "Mental Health America (MHA) is dedicated to accelerating the translation of scientific knowledge to practice and policy implementation" (MHA, 2006, p. 1). While they support EBP, they also have a variety of concerns about effectiveness. They also stated that EBP must be culturally, racially, and ethnically competent (MHA, 2006). The NMHA has also indicated that a portion of their website will be devoted to EBP, EBM, and new NMHA initiatives (NMHA, 2007). The Association for Children's Mental Health is educating its members about successful practices (ACMH, 2004). The National Alliance for the Mentally Ill (NAMI) supports the President's New Freedom Commission's position on the transformation of the mental health system to increase access to evidence-based services. They also support the need for continued research in mental health to prevent future generations from suffering (NAMI, 2003). In their 2004-2006 strategic plan, strategic goal one is, "People living with and recovering from mental illness have access to and benefit from evidence-based and emerging science-based practices in substantially improved mental health care systems that embrace family and consumer support and education" (p. 16); goal two is, "NAMI empowers families and consumers through customized, state-of-the-art support and education," "NAMI collaborates with others in supporting models of consumer-led
evidence-based practices . . ." (p. 18); and goal seven is, “NAMI is the nation’s voice for
the most vulnerable and neglected individuals living with mental illness,” “NAMI will
seek to identify and promote evidence-based practices that meet the needs of these
constituencies” (p. 27). These three goals support the use of EBP in mental health
(NAMI, 2003). In their June 2006 report on the strategic plan progress they indicate that
there has been progress on the goals related to EBP (NAMI, 2006).

The National Association of Social Workers (NASW, 2005) developed the
NASW Center for Workforce Studies. Their mission has three focuses, one of which is
“to disseminate timely information and resources on evidence-based practice” (p. 1). The
code of ethics, which guides social work practice, states in section 5.02 Evaluation and
Research, “(c) Social workers should critically examine and keep current with emerging
knowledge relevant to social work and fully use evaluation and research evidence in their
professional practice” (NASW, 1999, p. 1). In section 1.03 Informed Consent NASW
indicates that the social worker must inform the client of risks, limits, and reasonable
alternatives to the service (NASW, 1999). This infers that the social worker uses research
to inform the client. NASW, in its response to the President’s New Freedom Commission
and SAMSHA’s Federal Action Agenda, identified five actions social workers could take.
Action 2 suggested that all social workers help in the transformation of the mental health
system as well as their own practice by seeking EBP to use in their practice. They also
indicated that EBP would help social workers develop ideas and methods for data
collection on outcomes in their practice (NASW, 2005). In NASW’s Social Work
Summit related to public image they indicated that social workers by promoting EBP
could validate what they do in practice. They also recognized that other disciplines were
utilizing this strategy to demonstrate credibility (NASW, 2003). Testimony by NASW’s executive director Elizabeth J. Clark to the Institute of Medicine (IOM) on July 14, 2004 emphasized the need to ensure EBP is developed and implemented more quickly (Clark, 2004). All these organizations advocate for the implementation and integration of EBP into practice.

The Society for Social Work Research, a professional society for social workers interested in research founded in 1994, has as one of their goals “to promote evidence-based social work practice” (SSWR, 2004, p. 2). The Institute for the Advancement of Social Work Research (IASWR), founded in 1993, in their 2001 strategic plan has as one of its research and practice priorities to collaborate with NASW and CSWE to improve social work practitioner’s use of EBP (IASWR, 2001). One of their goals is “to promote evidence-based practice” (IASWR, 2001, p. 7).

Two international organizations have been created to systematically review studies for intervention effectiveness. The Cochrane Collaboration, founded in 1993, focuses primarily on medical and public health research (Cochrane Library, 2007). The Campbell Collaboration reviews studies primarily in the social sciences field (Shadish & Myers, 2004). Both use rigorous practices in reviewing research to ensure that high standards are met in the studies.

Accrediting bodies have also integrated EBP into their policies and standards. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) standards state: “To be certified for disease-specific care, you must: Use a standardized method of delivering care based on appropriate clinical guidelines and/or evidence-based practice” (JCAHO, 2007). The Council on Accreditation (COA) has integrated EBP into its
standards and in a comparison to the Council on Accreditation of Rehabilitation Facilities (CARF) indicate that one of the guiding principles in standard development emphasize services that are evidence-based. In COA's Standards Scope and Implementation they indicate that COA standards "are evidence-based and outcomes oriented" (COA, 2007, p. 3). COA's promotional brochure on the 8th Edition Standards stresses "Evidence-Informed" practice "Recogniz[es] that human service agencies are faced with increasing pressure to document 'what works' to meet the unique needs and aspiration of the people they serve" (COA, 2005, p. 2).

COA stresses evidentiary support for service delivery in their standards and support the three elements of EBP including the use of the best available evidence, practitioners experience, and client values. These mandates are now integrated into COA standards (COA, 2005).

In a review of CARF standards the Accreditation Requirement(s) require in the opioid specific standards specify that client rights address providing information to clients "about alternative treatments/medications that are evidence-based"(CARF, 2007, p. 1). Also, for outpatient programs "Treatment interventions that are utilized are recognized (research or evidence-based) in the addictions field" (CARF, 2007, p. 4).

The Council on Social Work Education (CSWE), which accredits schools of social work, in its Accreditation Policies and Standards of 2002 states that all graduating students should be able to "develop, use, and effectively communicate empirically based knowledge, including evidence-based interventions" and "practice students should additionally be able to identify, analyze and implement empirically based interventions" (CSWE, 2002, p. 10).
There is widespread support for implementation of EBP in mental health. However, there remains a lack of consensus regarding implementing EBP broadly in social work. The CSWE mandates that graduating M.S.W. students are knowledgeable of EBP; however, an adequately trained workforce is a barrier to implementing EBP mental health (Cody, 2007). To date, no one has attempted to measure the level of knowledge that graduating M.S.W. students have of the steps of EBP. Therefore, it is not known if M.S.W. students enter the workforce with knowledge of EBP.

**Research Relevant to Social Work Education**

**Dissemination of EBP in Social Work**

Jennifer L. Bellamy, L.M.S.W., Sarah E. Bledsoe, M.S.W., and Dorian E. Traube, CSW, completed a study entitled *The Current State of Evidence-Based Practice in Social Work: A Review of the Literature and Qualitative Analysis of Expert Interviews*. This study sought to highlight dissemination of EBP in the field of social work. Their main focus was on mental health services. They further identified barriers, themes, and trends and completed a literature review and interviewed eight experts in EBP (Bellamy et al., 2006).

A convenience sample was utilized to identify experts to be interviewed. These experts were not identified by name but were identified as “expert researchers experienced in mental health services research and evidence-based clinical interventions” (Bellamy et al., 2006, p. 37). Open-ended questions were used and a list of the questions was provided to the experts prior to the interviews. Interviews were voluntary and the
experts received no compensation for their involvement in the study. Experts were selected based on their “reputation and body of work in the field of EBP” (Bellamy et al., 2006, p. 37). A snowball sampling strategy was also used and the experts referred the authors to other experts for additional data collections. The criteria for “expert” were not stated. This method of choosing whom to interview appears biased and there may not be consensus on the “expert” status by those in the field of EBP. The participants were interviewed in their offices. All authors were present for six of the interviews and only two of the authors were present in the other interviews. It is unknown if these were the same two authors or a different dyad in each case. The interviewers each took notes during the interviews highlighting major themes. The notes were then transcribed for content analysis. The authors transcribed all notes separately. It does not appear that a recording devise was used and no transcription of the verbatim responses was acquired.

“Semantical content analysis was conducted,” (Bellamy et al., 2006, p. 39) using three protocols designations—analysis, attribution analysis, and assertions analysis. Assertion analysis was the primary analysis used because it the most comprehensive of the three protocols. They do not indicate that notes were taken verbatim or if the interviewers used a short hand or other method of taking notes, which may have made the comparison of themes difficult.

In the results they identify that the experts “had experience with EBP programs design including running an intervention, evaluating the effectiveness of interventions, the process of forensic evaluation of children referred for sexual abuse, adapting interventions and coordinating advocacy, policy, technical assistance and research synthesis efforts at the state level” (Bellamy et al., 2006, p. 39). Participants also “had
developed evidence-based interventions, taught EBP in the classroom and developed tool kit models of EBP” (Bellamy et al., 2006, p. 39). The experts also “had experience with tool kits, literature and training as methods of disseminating EBP” (Bellamy et al., 2006, p. 39). It was not clear if each participant had all these characteristics or if this was a compilation of characteristics.

While this was a study to focus on the state of social work, only five of the eight experts were social work professors the other three were in other fields. Although the other experts may meet their criteria, being a social worker or teaching in social work was not identified as criteria for being a participant. This is a problem since the focus of the research was on dissemination of EBP in the field of social work. The questions used also may have biased the responses. For example, question six, “Why do you think more practitioners don’t use EBP?” presumes that the experts knew that “more practitioners don’t use EBP” and felt that it should be used more often.

The experts had the greatest agreement in the areas of gaps and dissemination of EBP. They identified problems with funding, training for staff and practitioners, consumer involvement lacking, translating research to practice, and lack of EBP education at the master’s level as contributing factors to these gaps (Bellamy et al., 2006). These finding support the need for the research regarding EBP knowledge among social work students because the experts identified gaps in the dissemination of EBP with lack of EBP education at the master’s level as one of the factors contributing to the gap.
Instruments to Evaluate EBP

Terrence Shaneyfelt, MD, MPH; Karyn D. Baum, MD, MSEd; Douglas Bell, MD, PhD; David Feldstein, MD; Thomas K. Houston, MD, MPH; Scott Kaatz, DO; Chad Whelan, MD; and Michael Green, MD, MSc (2006) completed a systematic review of instruments for evaluating education in EBP, entitled Instruments for Evaluating Education in Evidence-based Practice: A Systematic Review, for the purpose of appraising, summarizing, and describing currently available teaching and evaluation instruments primarily in the field of medicine. This review is important to the current research because it identified a variety of valid and available instruments for evaluating some domains of EBP. It also synthesized a large number of articles. Three hundred forty-seven articles were identified and 115 were included, which represented 104 unique instruments.

Data sources used in the Shaneyfelt et al. (2006) study included MEDLINE, EMBASE, CINAHL, HAPI, and ERIC databases. Reference lists of articles retrieved, EBP internet sites, and eight educational journals from 1980 through April 2006 were reviewed for inclusion. The instrument had to evaluate EBP to be included and contain a sufficient description so that analysis was possible. Also, quantitative results of administering the instrument had to be included. Definition variables and terminology used in the study include development, EBP domains, feasibility, inter-rater reliability, participants (number, discipline and level), and validity. More complete definitions can be found in Appendix A.
Raters were randomly assigned as dyads, which represented all permutations of the six raters who authored the review. The pairs of raters resolved differences through consensus; however, the consensus model was not identified. Three levels of instruments were defined based on the type, extent, methods, and results of psychometric testing and suitability for different evaluation purposes.

The results of this review indicated that the EBP instruments targeted students and postgraduate trainees. Fifty-seven percent of the instruments evaluated EBP skills, 38% evaluated knowledge and behaviors, and 36% evaluated attitudes. Critical appraisal of the evidence was the EBP skill included most in the instruments (step 3 of EBP). Eighty-six percent of the 35 evaluation approaches for acquire the best evidence (step 2 of EBP) focused on searching bibliographic databases like MEDLINE. Four of five instruments evaluated skills in searching evidence-based medical resources like the Cochrane Library. Five of 13 instruments evaluated applying the evidence to practice (step 4 of EBP). This step went beyond the ability to consider evidence to the ability to integrate the evidence into the context of the client. Most of the instruments measured the use of EBP steps in practice. This supports the methods used to measure knowledge of the steps of EBP in this dissertation study. While not reported in the results, a review of the tables indicates that in the level one instruments, only two instruments focused on students. The authors recommended that educators document competencies of students and evaluate new curriculum (Shaneyfelt et al., 2006). Gibbs (2007) also challenged academia to do the same. The authors also suggest that educators use instruments with evidence of validity and correspond to the objectives of the curricula as well as selecting instruments with objectively measured outcomes. This is important to the current research because a
validated instrument is necessary to measure M.S.W. student knowledge of the steps of 
EBP. They also indicated that the science of evaluating EBP attitudes and behaviors 
continue to lag behind the evaluation of knowledge and skills (Shaneyfelt et al., 2006).
The current research seeks to measure not only knowledge of the steps of EBP but also 
the attitudes and perceptions M.S.W. students have of EBP. However, no research was 
found that measured M.S.W. student knowledge of the steps of EBP.

Social Work Faculty and Program Commitment to EBP

A third study included was a survey of Deans and Directors of Schools of Social 
Work entitled Do Master's in Social Work Programs Teach Empirically Supported 
Interventions? A Survey of Deans and Directors. Authors of this study were Jane D. 
Woody and Henry J. D’Souza of the University of Nebraska (Omaha), and Rebecca 
Dartman of the Medical Center of Aurora, Colorado (Woody, D’Souza, & Dartman, 
2006).

In this study, a questionnaire was administered to Deans or Directors of training at 
the 165 accredited schools of social work with M.S.W. programs identified in the “2003 
Directory of Colleges and Universities with Accredited Social Work Degree Programs 
published by the CSWE” (Woody et al., 2006, p. 472). They had a 40% response rate 
resulting in 66 surveys returned. However, only 34.5% of the respondents were deans or 
directors and 54.5% were other designated persons. The survey was a six-page document 
utilizing three definitions, “empirically supported treatments (EST) movement, EBP and 
evidence-based social work” (Woody et al., 2006, p. 472) with references sited. The 
survey also had two parts. Part one focused on asking the number of M.S.W. students and
faculty, degrees and concentrations and if the programs focus on specific treatment model theories in their practice curriculum. They also asked if the evidence supported intervention (ESI) was taught in practice courses and/or research courses. Part two focused on the positions taken by faculty and the official position of the program governing bodies (Woody et al., 2006). It was not clear if the deans and directors or the other designated persons represented the position of the governing bodies or if they were a part of the governing bodies. This may have been problematic since the governing body was not making the response. The deans and directors perception of the governing body’s position may have been inaccurate.

The Woody et al. (2006) study focused on two research questions. First, they wanted to determine informal faculty commitment and formal program commitment and program actions taken to intentionally teach ESI in their curriculum. The second was to determine the relationship between program characteristics and commitment levels and program action. Sixty and six tenths percent of the respondents identified that practice courses covered evaluation of practice, and 36.4% integrate evaluation of practice across curriculums. Ninety and nine tenths percent responded that evaluation of practice is covered in foundation research courses. Skills for the teaching of analysis and synthesis of evidence was measured by a scale from 0 = not at all to 9 = extensively. The mean for practice courses was 5.45, across curriculum had a mean of 4.64, and foundation research mean of 5.56. This suggests that they did not score very high on the scale indicating that analysis and synthesis of evidence is not extensively taught in any of the courses surveyed. Thirty-one percent of the governing bodies, according to the respondents,
indicated that they formally endorsed teaching specific ESI models and interventions in the practice courses.

The focus seemed to be on models versus knowledge. They indicate one of the limitations of the study was the “difficulties in attempting to study pedagogical practices in mental health professionals training programs” (Woody et al., 2006, p. 476). Additional limitations included possible bias in sample selection, lack of validity/reliability of the survey instrument, and the issue of validity of one person responding for a program. This survey assumed that the respondents were qualified to report on their programs and it is unknown what information or data they used to answer the questions on the survey. Therefore, the results of this survey should be utilized with caution.

Given the limitations, the authors identify four findings of the study. First, the faculty commitment to teaching ESI ($M = 24.67, SD = 8.14$) was significantly greater than the formal program commitment ($M = 19.00, SD = 9.05$). Second, the emphasis the programs gave on specific ESI models was one program characteristic that was important to commitment to ESI. Third, the faculty that were most committed to teaching ESI were teaching research courses ($N = 53$) and advanced practice courses ($N = 51$). Fourth, few programs used therapist protocols, client workbooks, and training videos. Also, no program identified a particular ESI model with which educators or practitioners should be aware. Recommendations were made for CSWE to address all efforts to increase empirical social work. Other issues that were addressed were dissemination of evidence-based information focus on adoption and implementation should focus on the issue of success. They indicated that students and practitioners will continue to vary extensively in
ability and willingness to choose and implement ESI without attention to planning and process (Woody et al., 2006).

**Amount of Evidence-Based Treatments Taught in Schools of Social Work**

Another study that was reviewed that is relevant to this research was the study conducted by Myrna M. Weissman, PhD; Helen Verdelli, PhD; March J. Gameroff, PhD; Sarah E. Bledsoe, M.S.W.; Kathryn Betts, DClInPsy; Laura Mufson, PhD; Heidi Fitterling, BA; and Priya Wickramaratne, PhD, entitled *National Survey of Psychotherapy Training in Psychiatry, Psychology, and Social Work*. The objective of this study was to determine the amount of evidence-based treatments (EBT) taught in accredited training programs in psychiatry, psychology, and social work. This study compared the three primary disciplines providing mental health services in the U.S., including schools of social work (Weissman et al., 2006).

A survey was administered based on a probability sample of all accredited training programs in the three disciplines. The participants were training directors from 221 programs, 73 psychiatry, 63 PhD in clinical psychology, 21 PsyD in psychology, and 64 M.S.W. programs. Five hundred fifty-two programs were identified and divided into regions of West, South, Midwest, and Northeast. A random sample was conducted of 300 potential participants that resulted in 54.35% within each discipline selected for the survey. The overall response rate was 73%. A stratified sample was taken with proportional allocation among the regions and disciplines. The main outcome measure was to determine if the programs required both a didactic and clinical supervision in EBT. This was identified as the gold standard for training and education of both EBT and
non-EBT. The results showed that few programs required both didactic and clinical supervision in EBT. Also, the most required training was not EBT. Psychiatry programs required both coursework and clinical supervision in EBT with 28.1% of the participants reporting this. Cognitive Behavioral Therapy (CBT) was the most offered EBT using didactic in the three disciplines. Clinical Psychology and Social Work had the highest number of students and also had the largest number of programs not requiring didactic and clinical supervision with 67.3% and 61.7%, respectively.

M.S.W. programs had the largest number of students per year with a mean number of students of 198, PsyD had a mean of 48, Psychiatric residency had a mean of 17, and PhD in clinical psychology had a mean of 17. Results suggest that the majority of clinicians are being trained in psychotherapies that have no controlled trials. They suggested that there was little justification for not teaching psychotherapies when evidence is robust. In Psychiatry CBT was included in the accreditation requirements and psychiatry training was geared toward competency (ACGME, 2007). While CSWE (2002) includes EBP and empirical interventions in their EPAS were presented regarding how to achieve client goals. Also, training practices did not provide for dissemination of training in EBP and not all states required continuing education in social work to continue to develop the practitioners (Weissman et al., 2006).

Limitations of the study identified by the authors included: the study did not evaluate the quality of the content of the courses or supervision, only exposure to EBT. The definition of EBT that was used was recognized as not being comprehensive and that other definitions were available. Even though there are a number of adaptations of cognitive behavioral therapy (CBT), they only included CBT as a single EBT. Similar
limitations were identified for group and family therapy (Weissman et al., 2006). Another limitation not mentioned was that the participants were directors of training and may not have knowledge of the practices within the classroom or field education. It was also not known where participants acquired their information to answer questions on the survey. They may not have used actual data. There was also no mention of the possible response bias based on pressure to show that they are meeting the accreditation standards.

This study suggested that the training programs had some elective didactics on most of the EBT in the three disciplines; however, a smaller percentage offered clinical supervision in EBT. Few also met the gold standard as defined by the study. The study recommended that the training programs needed to shift more toward EBT with more testing using controlled clinical trials of those psychotherapies that were taught in the programs. There also remained gaps in research evidence and training practices for psychotherapy (Weissman et al., 2006). This study also did not measure knowledge of students obtained in their training programs, only what was reported to be offered to them.

**Views of Social Work Faculty Regarding EBP**

Allen Rubin and Danielle Parrish of the University of Texas completed a study entitled *Views of Evidence-Based Practice Among Faculty in Masters of Social Work Programs: A National Survey.* This study was chosen because the beliefs of faculty could impact what is accepted and taught to social work students regarding EBP. An online survey was offered to 973, from email list of 3,061 potential participants, to faculty from M.S.W. programs. There were technical difficulties that did not allow them to accurately
determine the response rate; however, it was estimated to be above 33%. The study sought to answer three research questions:

1. What is the prevalence of favorable and unfavorable views of EBP?
2. To what extent are they defining EBP as a process versus as a way to designate certain interventions as evidence based, or both?
3. To what extent are they deeming sources of evidence at the lower levels of the research hierarchy as sufficient for deeming an intervention to be empirically supported or for conveying students that an intervention is evidence based? (Rubin & Parrish, 2007, p. 113)

The results showed that 81% of the respondents taught practice courses at least occasionally. The authors identify that the faculty who responded were more likely to teach in the classroom rather than the field. Seventy-three percent of the respondents viewed EBP favorably or very favorably and 12% viewed EBP as unfavorable or very unfavorable. While 12% may seem small, this indicates that 117 social work faculty with unfavorable or very unfavorable views of EBP are teaching students in M.S.W. programs. Two definitions of EBP were used for the study: “It is a way to designate certain interventions as empirically supported under certain conditions and it is a process that includes locating and appraising evidence as a part of practice decisions” (Rubin & Parrish, 2007, p. 116). Forty-six and two tenths percent of the respondents endorsed both definitions, while 47% endorsed only one with approximate equal numbers endorsing each definition 24.5% and 22.5%, respectively. Seven percent endorsed neither definition. These data demonstrated a lack of consensus on the definition of EBP.

The faculty was also asked to identify what they deemed as sufficient evidence to determine an intervention to be empirically supported or for teaching EBP. More than 90% identified experiments or quasi-experiments as sufficient for deeming an intervention as empirically supported and 92% would teach students that interventions
that meet these standards were deemed as evidence-based. There were only 23.3% of respondents that indicate that they would deem an intervention as empirically supported if identified by a professional organization as empirically based. Forty-four and six tenths percent of respondents would deem an intervention as empirically supported using single case design outcome evaluation. See Appendix B for a table of additional types of supported evidence from the study.

It may be problematic if the respondents view research at the bottom of the hierarchy sufficient to deem an intervention as empirically based and teach students that they deserve special recognition (see Appendix B). If students are being trained that any level of evidence is sufficient to be viewed as empirically supported or evidence-based, this may lead to additional problems. First, students may determine that anything can be defined as evidence and as a result not acquire and appraise studies. Second, students may deem an intervention as evidence-based if supported by studies on the low end of the hierarchy. As a result, students may provide interventions to their clients that are not effective. These results also inferred that there may be an erosion of the evidentiary standards of EBP.

Some limitations identified were that the standardized nature of the survey did not allow for a more complex perspective of EBP. By virtue of this being a quantitative survey, the researchers could not probe deeper into the responses for meaning. Additional limitations may be that there is not a consensus about the levels that were used in the hierarchy of evidence and the definitions used. It was also unknown how the definitions used impacted the responses to the survey.
Further research was recommended by this study to assess the views of EBP with master’s level faculty and field faculty. They also suggested that research should focus on what impact promoting more and better coverage of EBP in the curriculum would have on faculty views of EBP (Rubin & Parrish, 2007). This study was important to identify the faculty’s view of EBP and what level of evidence they deem necessary to determine an intervention to be empirically based and then teach as evidence-based to their students. This study did not focus on what M.S.W. students were learning or knowledge acquired regarding the steps of EBP. It focused only on views of faculty about EBP.

The definitions used in this study were not found elsewhere in the literature search for this dissertation; however, EBP as a process was found (Gibbs, 2003). Also, the definition about the process is incomplete. This may have impacted the response of the participants related to supporting the definitions.

**EBP in Social Work Field Education**

The study entitled *Integrating Evidence-based Practice and Social Work Field Education* conducted by Tonya Edmond, Deborah Megivern, Cynthia Williams, Estelle Rochman, and Mathew Howard was included in this literature review because field placement is an integral component of social work education and is seen to impact learning of clinical practice (CSWE, 2002). Edmond et al. (2006) surveyed 283 field instructors of the George Warren Brown (GWB) School of Social Work. A majority of those surveyed viewed EBP as a useful practice idea. GWB School of Social Work has made significant strides in integrating EBP into its curricula and has revised policies to include EBP according to the authors.
Field education provides students an opportunity to apply what they are learning in the courses in practice situations and aids in learning interventions. A 25-item survey that was self-administered by the field instructors was developed and administered. The survey was a combination of open and closed-end questions. The closed-end questions were a combination of yes/no, 5-point Likert scale from strongly agree to strongly disagree and 4-point scale from always to never. The definition of EBP was developed internally in the school. The survey was first pilot tested with four field instructors. Of the 761 questionnaires mailed, 161 (21%) were returned as undeliverable, reducing the potential respondents to 600. The first mailing had only a 13% response rate, resulting in 78 questionnaires being completed. Several follow-up measures were instituted by the authors, which increased the response rate to 47%. The majority of the respondents were licensed Clinical Social Workers (n = 161), and 15% (n = 42) were Academy of Certified Social Workers (ACSW) certified, 29% (n = 81) were identified as “other.” The definition of EBP used for this study was:

Evidence-Based Practice is the conscientious and judicious use of current best practice in decision-making about interventions at all system levels. Conscientious includes both consistently applying evidence, and continuing to learn as new evidence becomes available. Judicious includes balancing client characteristics, preferences, and life circumstances against relevant research/practice guidelines (expert consensus, research-based treatment recommendations)

Evidence Based Practice involves four steps: (1) formulating specific answerable questions regarding practice situations and identifying practice information needed, (2) finding and critically appraising the best scientific evidence, (3) applying the practice-relevant scientific evidence in the treatment process, and (4) evaluating the utility of information obtained by evaluating treatment outcomes/process. (Edmond et al., 2006, p. 384)

This research sought to determine to what degree GWB field instructors support and use EBP. The results indicated that 87% of the respondents agree strongly that EBP is
useful to practice. Sixty-two percent indicated that they usually or always implemented step one above. Half of the respondents ($n = 135$) indicated that they usually or always implemented step two. Fifty-two percent indicated they always or usually implemented step 3 and 53% always or usually implemented step 4. While these results indicate more than half of the respondents always or usually implement these four steps, a high percentage of respondents indicated that they only sometimes or never implemented these steps. The respondents had a variety of resources available to them; however, 73% indicated that workshops were their primary source of continuing education, 63% utilized supervision and consultation, and only 57% utilized a review of literature for continuing education.

The results also indicated that less than half of the respondents were practicing EBP consistently and medical, school, and case management social workers use EBP less than clinical social workers. Field instructors also were more likely to use traditional strategies in practice decisions. While field instructors use some EBP to choose interventions, they do not use EBP as a way of organizing their practice (Edmond et al., 2006). This study indicates that, while field education is important to developing knowledge and skills of M.S.W. students, the field instructors are not providing consistent supervision of students based on steps of EBP. There continues to be a more traditional approach to organizing practice (Edmond et al., 2006).

The survey utilized in this study was piloted with only four field instructors. Also, there were no data related to the survey's reliability or validity, which limits inferences that can be made from the data. There were statistically significant differences reported between the clinical and other groups and the medical, school, and case management
groups, although the data were not presented. The definition of EBP used in the survey was developed by Sackett and colleagues (1997) and may not be seen by the respondents as relevant to social work because it was developed for the field of medicine. Also, there may be a social response bias since this occurred with only one university that has integrated EBP into its curriculum. Respondents may have felt compelled to respond positively. Anonymity was not discussed in the article. Therefore, it was unknown if anonymity was agreed upon by the researchers and/or respondents.

Measuring Social Work Student Aptitude of One Step of EBP

Only one study by Charles A. Smith, Amy Cohen-Callow, Diane M. Harnek Hall, and R. Ann Hayward (2007) entitled Impact of a Foundation-Level M.S.W. Research Course on Students’ Critical Appraisal Skills was found that directly measured M.S.W. student knowledge and skills acquired, related to the one of the steps of EBP. Students completed a Modified Critical Appraisal Skills Program instrument, which measured their ability to appraise evidentiary studies and their attitude toward research. The anonymous survey was administered to students in seven sections of an introductory research course at the beginning and end of a semester at one university resulting in 77 matched surveys of 114 possible. A majority (57.1%) of the participants had taken a research methods course prior to the survey and 92.1% reported taking a statistics course. None of the 11 items in the aptitude scale were statistically significant, after receiving a foundation research course, related to the student’s ability to appraise evidence. The Smith et al. (2007) study suggests that even when social work student were taught to
appraise evidence in foundation research courses they were unable to demonstrate that they could apply what they had learned.

This study is limited because it focused on determining if social work students, at only one accredited university, acquired the ability to critically appraise evidence after taking the foundation research course in the master’s program. Also, this study measured student’s aptitude after taking only a foundation research course, not at the end of their M.S.W. program. Only one university was utilized in this study during only one semester, which limits its generalizability. The researchers also made some changes in the wording of a validated instrument without revalidating the final survey. No demographics were collected so it is not known if demographics, like age or gender, may have impacted the results. The researchers found that the text in the research course also did not cover all the items in the instrument. This may suggest that texts utilized to teach the knowledge required to appraise evidence are not adequate. This study, while limited, did attempt to measure the student’s ability to apply one of the steps of EBP: appraise the evidence.

**Barriers to Implementing EBP in Mental Health**

A study conducted by the author of this dissertation research, analyzed a secondary data set created by the National Research Institute, Inc., surveying the state mental health directors in all 50 states in the U.S. and Washington D.C. was analyzed. A survey was sent to all state mental health services directors in the U.S. including Washington D.C. The survey consisted of 195 questions in 11 areas including EBP. The respondents included 46 states and Washington D.C. (NRI, 2007).
One of the focuses of the analysis was on barriers to the implementation of EBP in mental health. Of the 46 states that responded to the question about barriers to implementing EBP, 38 states (82%) identified a shortage of appropriately trained workforce as a barrier to implementing EBP in public mental health setting second only to financing EBP (84%) (Cody, 2007).

This study had several limitations. It was a self-report survey and it is not known what the source of data was from the states. Some states may have had more accurate data than others; however, no data collection strategies were reported by the states. Also, in most cases the person completing the survey was not the state director of mental health services; however, the exact number was unknown because this finding was based on a review of the job title of the individual completing the survey. This study was important because it suggested that social workers in the workforce may not be adequately trained to implement EBP in practice.

**Psychotherapy Training and Mental Health**

Social workers provide more mental health services than any other discipline (NASW, 2005) and training of psychotherapy is essential to the social work in mental health. Paula Ravitz, MD, FRCPC, and Ivan Silver, MD, MEd, FRCPC, completed a study entitled *Advances in Psychotherapy Education* presents the “results of a national survey of psychotherapy education in Canadian psychiatry residency programs” (Ravitz & Silver, 2004, p. 230).

The authors conducted a Delphi survey with 14 training coordinators in Canadian universities. They were asked to comment on their psychotherapy curricula, teaching
methods, and evaluation, as well as changes that had occurred in the past decade related to psychotherapy education.

The results indicate advances over the past 10 years in curriculum, teaching methods, and evaluation. These advances include the training of evidence-based therapies, evaluation competency, and integrating technology. One-on-one supervision was found to be an effective teaching strategy teaching the learner to apply knowledge. Longitudinal apprentice models were seen as best practice in teaching models. However, the study did not provide adequate evidence to make these claims. They also did not do a comprehensive study to compare teaching models. Psychotherapy curricula have added empirically validated therapies but only on a limited basis.

They recommend that programs that teach psychotherapy include EBP psychotherapies as well as psychodynamic psychotherapy. They further indicated that research findings indicate that successful education programs are longitudinal, engage the students, are integrated clinically and focused on the learner. They inferred that there are gaps between education and practice and recommended that the effectiveness of the students’ knowledge and skills.

The authors recommend using standardized rating scales to ensure adherence and competence and that caution should be given to emphasizing fidelity at the expense of competence. They also recommend that measures of trainee knowledge be taken pre and post training to measure changes in knowledge, skills, and attitudes. Patient satisfaction should also be monitored and used as a measure of the application of clinical skills (Ravitz & Silver, 2004).
One limitation was that the study included only Canadian psychiatry residency programs that may be different than U.S. residency programs and limits the generalizability of the results. They did not include social work, which provides the largest number of mental health services of the disciplines providing mental health services (NASW, 2005). Also, a limited selection of adult education principles was reviewed. Recommendations for education may not be possible due to limited resources (Ravitz & Silver, 2004).

**Measuring Knowledge and Attitudes of EBP**

Two studies were utilized in developing the instrument for the current research. The first was a study conducted by Fritsche, Greenhalgh, Falck-Ytter, Neumayer, and Kunz (2002) entitled *Do Short Courses in Evidence Based Medicine Improve Knowledge and Skills? Validation of Berlin Questionnaire and Before and After Study of Courses in Evidence Based Medicine*. One purpose of this study was to develop and validate an instrument to measure medical student knowledge and skills in evidence-based medicine.

This study was conducted in three phases. In the first phase the instrument was developed. In the second stage the instrument was validated. In the final stage the instrument was used to determine the effect of a short course in evidence-based medicine (EBM) utilizing a pre/posttest method. The instrument was administered to a cohort of experts “(tutors with formal methodological training or graduates from a training workshop for tutors in evidence based medicine)” (Fritsche et al., 2002, p. 1338). The instrument was also administered to a control group of third year medical students who had not had any exposure to EBM. The instrument was administered to a third group of
participants of an EBM course. There were three cohorts in this final group. Participants from three consecutive years of participants taking the course 1999 ($N = 82$), 2000 ($N = 50$) and 2001 ($N = 71$). The authors sought to measure doctor’s knowledge of interpreting healthcare research, ability to apply the research to a clinical question, and the ability to use research to solve problems of patients.

They also developed a three-day course in EBM patterned after a model that was developed by the McMaster University in Canada. This training exposed the participants to principles of EBM. The participants were administered the instrument within four weeks of taking the training and then administered the instrument on the final day of the training. The main measure was change in mean score. The instrument included 15 questions and each correct answer (see Appendix C) was awarded one point.

There were 266 participants in the study including 43 experts, 20 control participants, and 203 participants who were administered a pre/posttest. They indicated that 12% of the pre/posttest participants had previous exposure to EBM. Of the 203 participants, the authors received 161 matched sets of test instrument from students taking both the pre and posttest. The results also indicate a Cronbach’s alpha of the two pretest (0.75) and the posttest (0.82) indicating a reliable measure of knowledge of EBM.

The results indicated that the participants on the pretest scored a mean score per question of 0.42, the experts scored a mean score per question of 0.81 and the control scored a mean score per question of 0.29. The difference in total mean scores for the participant groups were significantly different $p < .001$. Participants in the course training also had a significant improvement in their mean score $p < .001$. These scores were
similar with the three cohorts who received the course. There was a 57% increase in knowledge and skills after taking the EBM course.

Limitations of the study include that the authors were not able to measure all skills related to EBM with the instrument. It primarily focused on utilizing research information. They did not describe the research that was used in this study. Therefore, it is unknown what the quality and completeness of the research was. When the research that was used to support the answers in the questionnaire was conducted is not known. The study focused on short-term learning, not long-term learning or application to real patients. Therefore, it was unknown if the participants maintained this knowledge and used it in practice. Their definition of expert may not be widely accepted. Demographics, like age and gender, were also not reported. Therefore, it is unknown if participants with different demographics scored differently. It is important to know if demographic variables impact scores to determine if the questionnaire is valid for different demographics.

A second study that was utilized in developing the instrument was conducted in nursing by Kate Gerrish, Peter Ashworth, Anne Lacey, Jeff Bailey, Jo Cooke, Sally Kendall, and Elaine McNeilly (2007) entitled Factors Influencing the Development of Evidence-based Practice: A Research Tool. The data were collected in 2002, 2003, and 2005. The purpose of the study was to develop and test an instrument to determine what factors influence nurses use of EBP.

The Developing Evidence-Based Practice questionnaire was developed and tested in two studies. In the first study (2002-2003) 598 hospital nurses in two hospitals (45% and 40% response rate) in northern England were surveyed. In the second study (2005) an
expanded survey was administered to 689 community nurses (47% response rate). The questions utilized a Likert scale. The results indicated 10 factors were shown to significantly influence nurses' relation to EBP. Cronbach's alpha was calculated for each scale related to the 10 factors and the survey was determined to be reliable alpha ≥ .7.

Limitations indicated by the authors were concern about a low response rate indicating a possible response bias. The survey was changed slightly before the second study. Demographic factors, like age, gender, and length of time as a nurse, were not reported. Therefore, it was unknown how these factors may have influences responses. Also, only two hospitals in one area in England were used and community nurses in two areas in England were used. These groups may not be representative of nurses in general nor may they represent nurses in the U.S.

Summary of Literature Review

After a thorough literature review and review of several studies related to education and EBP, no research studies were found that focus on measuring the knowledge graduating M.S.W. students have of all five steps of EBP. Studies were found and reviewed that interviewed experts and completed literature reviews on EBP (Bellamy et al., 2006), reviewed instruments for evaluating EBP in education (Shaneyfelt et al., 2006), surveyed deans and training directors of social work programs and other disciplines (Weissman et al., 2006) and attitudes of social work faculty toward EBP (Rubin & Parrish, 2007). Additional studies were also found and reviewed focusing on field education (Edmond et al., 2006), psychotherapy education (Ravitz & Silver, 2004). One study was found that attempted to measure the level of knowledge of one of the steps
of EBP, appraisal of evidence (Smith et al., 2007). Finally, the author of this dissertation research completed a study of public mental health and found that a untrained workforce is a barrier to the implementation of EBP nationally (Cody, 2007). A variety of web sites were reviewed including federal agencies, advocacy organizations, accreditation bodies, systematic review sites, and other resources to develop a thorough background on evidence-based practice.

Because social workers provide more psychotherapy and mental health services than any other helping discipline (NASW, 2005), it is essential that graduating M.S.W. students in practice concentrations be prepared to meet the challenges of providing the most effective treatments for the problems their clients will present to them (Gambrill, 1999). Several federal agencies have become involved in the transformation of the mental health system to EBP in the past decade beginning including: SAMHSA (1997), the Surgeon General (1999), the President's New Freedom Commission on Mental Health (2003), and the National Institute of Mental Health (NIMH, 2006). EBP is seen as central to this transformation according to the President's New Freedom Commission on Mental Health (2003). The CSWE (2002) in its Policies and Standards required Social Work Curriculums to prepare students to utilize EBP in their practice. NASW (1999) code of ethics also supported the need for clients to be offered the most effective therapies to address their presenting problem and to provide informed consent as an ethical standard for social workers. Again EBP was seen as responding to this requirement. This dissertation study seeks to determine if graduating M.S.W. students have acquired knowledge of the steps of EBP.
Research Question

This research seeks to measure the knowledge graduating M.S.W. students have of the steps of EBP in the final semester of their M.S.W. program. The primary question to be answered in this research is: How well do students perform on a validated measure of knowledge of the steps of EBP in the last semester of their M.S.W. program?
CHAPTER III

METHODS

Purpose

The purpose of this study was to administer a newly validated instrument to graduating M.S.W. students to measure their knowledge of the steps of EBP. The current research utilized the five steps to EBP as outlined by Straus (2006): (1) ask a researchable question, (2) acquire research evidence, (3) appraise the evidence, (4) apply the evidence to practice, and (5) assess the outcome.

A training module was developed for teaching the steps of EBP to second year M.S.W. students and an instrument was developed to measure student knowledge of the steps of EBP. The training module synthesized the research on EBP and provides educators a tool for teaching the steps of EBP to M.S.W. students and practitioners, helping facilitate integration of EBP into the classroom, curricula and practice.

Hypotheses

Pilot Study

It was hypothesized that the first year students would score lowest on the instrument, the second year students would score higher on the pretest than the first year students, the second year students would score higher on the posttest than they did on the pretest, and the experts would score higher than both student groups. This hypothesis was
developed based on the results of the Fritsche et al. (2002) that showed scores on the instrument increased based on the level of training the participants had received.

Main Study

It was hypothesized that the mean scores of the students on the instrument would demonstrate that students were graduating from M.S.W. programs in Michigan with limited knowledge of the steps of EBP. It was further hypothesized that they, on average, would not score a passing grade, based on a grading scale used by the researcher in social work courses taught (see Appendix D), on the validated instrument. This hypothesis was developed based on the results of the Cody (2007) study which found that 82% of the states report an inadequately trained workforce as a barrier to the implementation of EBP in public mental health.

Study Design

This research was conducted in three phases. In the first phase, a training module and measurement instrument were developed. During the second phase, the instrument was validated in a pilot study at the Western Michigan University School of Social Work. In the final phase, the validated instrument was administered to social work practice students in the final semester of their M.S.W. program at five CSWE accredited schools social work in Michigan.

The literature review revealed no studies that have measured the knowledge students have of the steps of EBP in the final semester of their M.S.W. program. However, an instrument has been developed and validated in the field of medicine to
measure student knowledge of EBM. The Berlin Questionnaire (Fritsche et al., 2002), developed for medicine, was adapted to social work practice and reviewed by a panel of experts for its relevance to social work practice and its ability to measure M.S.W. student knowledge of the steps of EBP. The current study replicated the methodology of the Berlin study for validating the instrument. Additional questions for the instrument were drawn from the Developing Evidence-Based Practice (DEBP) survey (Gerrish et al., 2007).

**Training Module Development**

It was important to ensure that the second year students, in the pilot study, were exposed to the concepts and steps of EBP and to determine if the instrument could measure the construct of knowledge of the steps of EBP. Therefore, a training module was developed to ensure that students were exposed to the steps of EBP and the application of the steps to social work practice prior to the posttest. The training module in this study was adapted from the training modules developed by Columbia University (Mullen et al., 2007). This process of training students on EBP to ensure they were provided information necessary to master the instrument was also utilized in the Fritsche et al. (2002) study. The training module in the current study also included information about the benefits of EBP to social workers. Examples were also included in the training module regarding systematic reviews and meta-analyses specific to two mental health treatment models.

The second year students in the pilot study received a notebook of handouts, compiled by this author, that could be used as resources for both the current research
project and the students’ future learning and utilization of EBP. First year students in the pilot and students in the main study received these handouts on a CD created by the author. Second year students in the pilot were provided the handouts as hard copies because they were referred to in the training module presentation. The training module was developed to provide students with an overview of the steps of EBP and it also covered all information that was tested in the instrument.

**Instrument Development**

An instrument was developed to measure the level of knowledge of M.S.W. students have of the steps of EBP that was first developed by Sackett and Rosenberg (1995) and utilized in social work (Edmond et al., 2006; Gibbs, 2003; Straus, 2006). The Berlin Questionnaire, a validated instrument from the field of medicine, was adapted to social work practice (see Appendix E). Fifteen questions, which were the same for all cohorts, were developed to measure knowledge of the steps of EBP. These questions were drawn from information from a variety of sources found in the literature review (Bandolier, 2008; Cochrane Library, 2007; Gibbs, 2003, 2007; Mullen et al., 2007).

Each correct answer to a question received one point and each incorrect answer received zero points. This method of scoring is identical to the scoring plan of the Berlin Questionnaire. Questions were also drawn from the Gerrish et al. (2007) study to develop EBP attitude and perception questions for the instrument for this dissertation research. Questions were also included to obtain demographic and background information on the participants. Some demographic information was different for the expert cohort (Appendix F). Demographic questions were asked that were relevant to professors of
social work (see Appendix F). Knowledge Questions in the instrument corresponded to each of the steps of EBP. Questions 4, 5, 13, and 14 measured knowledge of step 1 of EBP (Ask a researchable question). Questions 6, 14, and 15 measured knowledge of step 2 of EBP (Acquire research evidence). Questions 7, 8, 9, and 14 measured knowledge of step 3 of EBP (Analyze the evidence). Questions 1, 2, 3, 10, 11, and 14 measured knowledge of step 4 of EBP (Apply the evidence to practice) and questions 12 and 14 measured knowledge of step 5 of EBP (Assess the outcome). Eighteen questions were asked based on a 4-point Likert scale (strongly agree, agree, disagree, strongly disagree) to determine students' attitude about and perception of EBP. Knowledge questions were matched to the Likert scale questions that also corresponded to the steps of EBP. No Likert scale questions corresponded to step one and five of the steps of EBP in the instrument.

**Expert Panel Recruitment**

An expert panel was recruited to review the pilot study instrument and training module to determine their relevance to social work and accuracy. These experts were persons who have written either book(s) and/or article(s) on EBP and were professors in CSWE accredited Schools of Social Work. A snowball approach was also used when one expert chose not to participate. Initially five experts were recruited. However, between the times of the experts were recruited and the time the instrument and training module were submitted to them, two members were unable to participate. Three experts reviewed and provided feedback on the instrument and training module.
Review by Expert Panel

Once the training module and instrument were developed, they were submitted by email to the expert panel for review. Feedback was received from the expert panel and dissertation committee. Changes were made on the instrument, based on the feedback, and resubmitted to the panel for further review and feedback. No recommendations were made for changes to the training module by the panel. Additional feedback was received from one panel member and dissertation committee members regarding the instrument and changes were made to the instrument. No further feedback was solicited once these changes were made and approved by the dissertation committee.

Human Subjects Institutional Review Board Review

An anonymous consent form was developed utilizing the template from the Western Michigan University Human Subjects Institutional Review Board. Scripts to be utilized with the deans/directors, professors, and students were also developed. Once developed, the instrument, training module, anonymous informed consent, scripts, and other required documents were submitted to the WMU Human Subjects Institutional Review Board (HSIRB). The instrument, training module, anonymous consents, and scripts for use with the cohorts were approved by HSIRB. Because some experts requested that the instrument be sent by email to them, an email version of the instrument was developed and submitted to HSIRB for approval and approval was received. Once the research and related documents were approved by HSIRB, the pilot study was conducted.
Pilot Study

**Sampling design and procedures.** To validate the instrument a pilot study was completed at Western Michigan University School of Social Work. Three cohorts were recruited for the pilot study that closely matched the cohorts in the Fritsche et al. (2002) study. Inclusion criteria for the M.S.W. students included one class of students that would be considered “novice” and had not yet taken any of the research courses in the M.S.W. program. A second cohort recruited was one class of second year M.S.W. students that would have received the majority of the training from the M.S.W. program including research courses.

One practice class of first year M.S.W. students \( N = 21 \) and one practice class of second year M.S.W. students \( N = 22 \) were recruited using an availability sample. A power analysis was completed using the information from the Berlin Questionnaire. The mean \( M \) score and standard deviation for the treatment group on the pretest was \( M = 6.3 \) and \( SD = 2.9 \), and on the posttest \( M = 9.9 \) with a \( SD = 2.4 \). Using a power of .80 the sample size necessary for comparison of groups was determined to be 13.

A third cohort of experts was also recruited. This was important to have participants with a range of expertise and knowledge in EBP to validate the instrument. Experts were also included in the Fritsche et al. (2002) study to validate the Berlin Questionnaire. The criteria utilized for inclusion in this cohort was that they had authored either an article and/or book on EBP and were a professor in a school of social work. Initially 24 experts were identified and sent an email to determine if they would be interested in participating in the project. University web sites were reviewed to verify that
they were currently a professor. The experts were also provided the criteria for their participation. Sixteen responded indicating they would be interested in participating. Fifteen requested the instrument be sent to them electronically and one requested postal mail.

**Administration of the instrument and training module.** The author met with the first year M.S.W. student class during the winter semester 2009 at WMU. The script was read to explain to the students what they were being asked to do. An anonymous informed consent was provided to them. Once all students read the consent and agreed to participate, the instrument was distributed to the students. Once students completed the instrument, they placed it in a folder at the front of the classroom. As they inserted their instrument in the folder, they were given a copy of the EBP resource CD. The first year cohort did not receive the training module.

The author met with the second year M.S.W. student class during one class period in the winter semester 2009 at WMU. The script was read to explain to the students what they were being asked to do. An anonymous informed consent was provided to them. Once all students read the consent and agreed to participate, the instrument (pretest) was distributed along with a card that had a number on it that matched the number on the instrument they received. Instruments were numbered so they would get a matching number on both the pre- and posttest. This was done to allow for possible comparison of scores by student on the pre- and posttest. Once students completed the instrument, the students placed it in a folder at the front of the classroom. The students were then provided an EBP resource notebook for use during the presentation of the training module. The training module was presented with a Microsoft Office PowerPoint
presentation (approximate time of presentation was 1.5 hours). Once the training module was presented, the instrument (posttest) was distributed. Once completed, the students placed the posttest in a separate folder from the pretest in the front of the classroom.

The script, anonymous informed consent, and instrument were sent to 15 expert participants by email and one by postal mail. Once sent, three experts replied indicating they were no longer interested in participating and one email was returned indicating the expert was on sabbatical. Three experts did not respond. One expert answered only one question and was not included. Follow-up emails were sent to those experts who had not completed the instrument. No response was received from them. One additional request was sent with a copy of the instrument and consent. No responses were received as a result of the follow up. Eight (N = 8) experts completed the instrument and were included in the pilot study. The expert cohort did not receive the training module.

**Hypothesis.** It was hypothesized that the first year students would score lowest on the instrument, the second year students would score higher on the pretest than the first year students as they would have had most of the training offered by the university, and the second year students would score higher on the posttest than they did on the pretest. It was also hypothesized that the experts would score higher than both student groups. The instrument would be considered valid if the hypothesis was upheld. A Cronbach’s alpha result of >.70 was considered adequate to determine the instrument reliable. However, it was expected that the alpha would increase as the number of questions exceeded 12. A corrected item total correlation value, for each question, of .3 or higher was needed to indicate that the item was correlated with the overall score of the scale (Field, 2009).
**Data entry and analysis.** The data from the instruments of all the participants in the pilot study were entered in SPSS and a Cronbach's alpha reliability test was completed. To compare the mean scores of all groups, an ANOVA was conducted with a Bonferroni Post Hoc Correction. To compare the mean pretest and posttest scores of the second year cohort (after receiving the training module), a one-way repeated-measure ANOVA was conducted. Once the instrument was validated, participants were recruited from the other six schools of social work in Michigan for use in the main study.

**Main Study**

**Sampling design and procedures for main study.** Michigan has seven schools of social work that are accredited and offer M.S.W. programs. WMU was not utilized for the main study because of its participation in the pilot study. An attempt was made to recruit one second year practice class from the remaining six schools including Andrews University, Eastern Michigan University, Grand Valley State University, Michigan State University, University of Michigan, and Wayne State University. A minimum of 13 students was needed from each school, based on the power analysis, to allow for comparisons between students and between schools. A minimum total of 78 students was to be recruited; however, it was expected that the total would be higher. Students participated voluntarily and anonymously and there was no penalty for not participating. To be included in the main study the students had to be practice students in the final semester of their M.S.W. program.

**Participant recruitment process.** Deans/directors of the schools of social work were contacted by email from the Dean of the College of Health and Human Service, a
member of the dissertation committee, to request recommendation regarding classes that met the inclusion criteria and as a courtesy to the deans/directors. Permission to utilize their school in the study was also requested. A follow-up email was sent by this author to the deans/directors to clarify their agreement to contact instructors and for the schools’ willingness to participate in the study. Information was provided to each school by email explaining the purpose of the study, time commitment, and responsibility of the instructor and students. Each of the deans/directors forwarded the email to faculty to request participation with instructions to contact the author of this dissertation if they were interested in participating.

In one school the names and contact information of two professors who were teaching students that met the inclusion criteria were forwarded to this author by the dean/director. Telephone contacts were made with two schools who did not respond and both deans/directors agreed to forward the request to the faculty.

One school indicated that they had a policy not to allow class time to be utilized for research studies; however, they would forward a request to students in their list serve by email and provide space for the author to administer the instrument on campus. The request was forwarded and 14 students agreed to participate and a date and time was scheduled to go to the campus. Only 7 students completed the instrument that met the inclusion criteria. An additional email was sent to students to determine if anyone would be willing to participate by receiving the instrument by email. Five responded that they were interested in completing the instrument by email. However, only 3 completed the instrument, resulting in 10 students completing instruments for inclusion in the main study at this site. One final email request was made with no response.
One university supplied the names and email addresses for two professors that were teaching classes that met the inclusion criteria. Emails were sent to both professors to solicit their participation. One professor declined to participate and the other professor did not respond. Two follow-up emails were sent and two voice mail messages were left with no response.

One professor from four of the remaining schools contacted the author by email to provide permission for the instrument to be administered in their class. Two professors from one school replied with interest and both were included. Follow-up emails were sent and phone calls were made to confirm times and dates for administering the instrument.

All students in the classes where the instrument (Appendix G) was administered met the criteria for inclusion except those in one university. Even though inclusion criteria were sent to the professor, the class being taught had a mixture of students who would be graduating at different times. This information was not disclosed until the author attended the class to administer the instrument. The instrument was administered; however, the students were asked to write the month and year on the instrument that they planned to graduate. Only six students ($N = 6$) indicated that they were in their final semester and were included in the research. Six students did not indicate when they were graduating and were excluded and 11 students indicated that they were not in their final semester and were excluded.

Of the remaining three schools, one school had $N = 31$ students, one school had $N = 20$ students, and one school had two classes of students $N = 14$ and $N = 15$. This resulted in $N = 96$ students who met the criteria for inclusion and who were administered the instrument at five of the six remaining schools of social work in Michigan. This
exceeded the number needed of 78, based on the power calculations, by 18 students; however, only three of the schools had enough participants to allow for comparison between schools. The names of the schools were not reported in the results; however, each school was assigned a letter “A” through “E.” Schools A (N = 20), B (N = 31), and C (N = 29) met the power requirements (N = 13) for comparison. Schools D (N = 10) and E (N = 6) did not have enough students.

Figure 1 below shows both the pilot and main study participants. The number of participants is also included.

Data entry and analysis. Data entry from the instrument results was completed by this author. A data dictionary and codebook were developed prior to data entry to describe all variables, their values, and protocols. Data were entered into SPSS 12.0 for Windows. Data were entered twice to minimize errors in data entry. Descriptive statistics were calculated for each participant and school (e.g., frequencies and means and standard deviation as appropriate).

Data for pilot study. Once data were entered into SPSS, a Cronbach alpha reliability test was conducted to determine the reliability of the instrument. A Cronbach alpha of >.70 was considered acceptable for reliability (Field, 2009). An ANOVA was also conducted to determine if there was a significant difference in the mean scores of the cohorts. Data were also analyzed utilizing an ANOVA to determine if there was a significant change in mean scores between pretest and posttests of the second year M.S.W. student cohort to determine if the training module was an effective tool in increasing knowledge of the participants of the steps of EBP.
Figure 1. Participant Recruitment Process
Data for main study. Once the instrument was completed at each university, the data from the instruments were entered into SPSS for analysis utilizing an ANOVA. The ANOVA allowed for comparison of group means to determine if there were differences between schools. Hochberg’s, Dunnet’s, and Games-Howell Post Hoc comparisons were also conducted. Mean scores were also computed for each school as descriptive statistics. Mean scores were also compared between groups at each of the schools to determine if other factors may be influencing test scores. A variety of correlations were computed utilizing a Spearman’s correlation coefficient and two-tailed test of significance to determine what variables may be correlated.
CHAPTER IV

RESULTS

This research was conducted in three phases. In the first phase, a measurement instrument and training module were developed. During the second phase, the instrument was validated in a pilot study at the Western Michigan University School of Social Work. In the final phase, the validated instrument was administered to social work practice students in the final semester of their M.S.W. program at five accredited schools social work in Michigan. The results of these three phases are presented to address the primary research question and additional findings as a result of the data analysis.

The primary question to be answered in this research was: How well do students perform on a validated measure of knowledge of the steps of EBP in the last semester of their M.S.W. program? The following data are presented to answer the research question and provide data to address the hypotheses and to present additional data that are important to the field related to EBP and social work.

Pilot Study

A Cronbach’s alpha test was performed to determine the reliability of the instrument. The analysis of the data from the pilot study resulted in a Cronbach’s alpha of .86. An analysis was also completed requesting results if a question was deleted. Question 11 showed a Cronbach’s alpha of .87 if the item was deleted, which is higher than the
overall Cronbach’s alpha .86. All other questions resulted in a Cronbach’s alpha of <.86. Question 11 also showed a corrected item-total correlation result of .083. However, all other questions resulted in a corrected item-total correlation of >.3.

Upon review of question 11, it was determined that one of the incorrect answers was closely worded with the correct answer. Also, question 11 was the second most missed question with 80.6% of the participants answering this question incorrect. Question 11 was also the question that was answered incorrectly by more expert cohort than any other question, with four out of the seven experts answering the question incorrectly. The closely worded incorrect answer was changed with no further testing of the instrument.

Question 11 in the pilot study was worded as follows:

11. You have become certified to provide Dialectic Behavioral Therapy (DBT). This therapy has been found to be effective with adult females with self-harm behaviors. You receive a number of referrals to treat this population. To evaluate the effectiveness of your interventions you should track and record all but which of the following:

a. Client satisfaction
b. How often the intervention is given
c. The number of times you have applied the intervention
d. Outcomes

Question 11 (c) was changed for the main study to read:

11. You have become certified to provide Dialectic Behavioral Therapy (DBT). This therapy has been found to be effective with adult females with self-harm behaviors. You receive a number of referrals to treat this population. To evaluate the effectiveness of your interventions you should track and record all but which of the following:

a. Client satisfaction
b. How often the intervention is given
c. The time of day the intervention is given
d. Outcomes
Descriptive statistics were calculated for each cohort and shown in Table 1. An ANOVA using Bonferroni correction was conducted to compare the cohorts’ mean total scores to determine if there was a statistically significant difference in the mean scores of the cohorts (see Table 2). The ANOVA demonstrated that there was a statistically significant difference between the first year cohort mean score \((M = 3.57)\) and the second year (posttest) cohort posttest mean score \((M = 9.95)\) with a mean difference of 6.38 and a statistically significant difference between the first year cohort and the expert cohort mean score \((M = 11.86)\) with a mean difference of 8.29 at \(p < .0005\). The repeated-measures ANOVA demonstrated that there was a statistically significant difference between the second year cohort pretest mean score \((M = 4.91)\) and the second year cohort posttest mean score \((M = 9.95)\) with a mean score difference of 5.05, \(p < .0005\). There was also a statistically significant difference between the second year cohort pretest mean score \((M = 4.91)\) and the expert cohort mean score \((M = 11.86)\) with a mean score difference of 6.94, \(p < .0005\). There was not a statistically significant difference in the first year cohort mean score \((M = 3.57)\) and the second year cohort pretest mean score \((M = 4.91), p = .290\). There was also not a statistically significant difference in the second year cohort posttest mean score \((M = 9.95)\) and the expert cohort mean score \((M = 11.86), p = .290\).

Based on the feedback from the expert panel and dissertation committee and the statistical analysis, the instrument was determined to have face validity and was a reliable measure of student knowledge of the steps of EBP based on the specific framework utilized in this dissertation.
Table 1

Mean Scores on Instrument for Cohorts in Pilot Study

<table>
<thead>
<tr>
<th>Interval Cohort</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st yr</td>
<td>21</td>
<td>3.57</td>
<td>2.521</td>
<td>.550</td>
<td>2.42</td>
<td>4.72</td>
</tr>
<tr>
<td>2nd yr (pretest)</td>
<td>22</td>
<td>4.91</td>
<td>1.797</td>
<td>.383</td>
<td>4.11</td>
<td>5.71</td>
</tr>
<tr>
<td>2nd yr (posttest)</td>
<td>20</td>
<td>9.95</td>
<td>3.031</td>
<td>.646</td>
<td>8.61</td>
<td>11.30</td>
</tr>
<tr>
<td>Expert</td>
<td>7</td>
<td>11.86</td>
<td>1.952</td>
<td>.738</td>
<td>10.05</td>
<td>13.66</td>
</tr>
</tbody>
</table>

Table 2

Differences in Mean Scores of Cohorts

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Comparison Cohort</th>
<th>Mean Difference</th>
<th>SE</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td>1st yr</td>
<td>2nd yr (pre)</td>
<td>1.338</td>
<td>.750</td>
<td>.290</td>
</tr>
<tr>
<td></td>
<td>2nd yr (post)</td>
<td>6.383</td>
<td>.750</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Expert</td>
<td>8.286</td>
<td>1.073</td>
<td>.000</td>
</tr>
<tr>
<td>2nd yr (pre)</td>
<td>2nd yr (post)</td>
<td>5.045</td>
<td>.741</td>
<td>.000</td>
</tr>
<tr>
<td></td>
<td>Expert</td>
<td>6.948</td>
<td>1.067</td>
<td>.000</td>
</tr>
<tr>
<td>2nd yr (post)</td>
<td>Expert</td>
<td>1.903</td>
<td>1.067</td>
<td>.290</td>
</tr>
</tbody>
</table>

Note. Results of the Bonferroni Post Hoc.

Main Study

The validated instrument was administered to students in the final semester of their M.S.W. program at five of the remaining six accredited schools of social work in Michigan. Analyses were conducted with all schools, with only schools A, B, and C and
with schools A, B, C, and E. School E is included in analysis when analyses are made of the total population meeting the inclusion criteria.

The demographics of the main study participants are shown in Table 3.

Table 3

*Participant Demographics*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>Mean</th>
<th>Range</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Students</td>
<td>86</td>
<td></td>
<td></td>
<td>15</td>
<td>70</td>
</tr>
<tr>
<td>Age</td>
<td>30.3</td>
<td>22–62</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td></td>
<td></td>
<td></td>
<td>15</td>
<td>70</td>
</tr>
<tr>
<td>BA Social Work</td>
<td>34</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other BA Degree</td>
<td>40</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

The results showed a range of mean scores for all schools from 5.24 (school C) to 8.33 (school E) (see Table 4). Using the grading scale (see Appendix D), 94% of the students that met the inclusion criteria scored below 63% correct answers resulting in a grade of D or below, with 87.2% scoring at or below 57% correct answers resulting in a failing grade (E) on the instrument. The highest score for students that met the inclusion criteria was 11 correct answers by three students resulting in a grade of C (see Table 5). To determine if there were any differences in the means scores of the schools an analysis of variance, with a Hochburg and Games-Howell Post Hoc Tests, was conducted. The results of the Hochburg Post Hoc tests showed a statistically significant difference in mean scores (−3.06) between schools C (\(M = 5.24\)) and D (\(M = 8.30\)) \(p < .005\) and a statistically significant difference in the mean scores (−3.09) between schools C
(M = 5.24) and E (M = 8.33) with p = .004 (see Table 6). The results of the Games-Howell only showed a statistically significant difference in mean scores of schools C and D with p = .001.

Table 4

*Average Scores by School on Measurement Instrument*

<table>
<thead>
<tr>
<th>Interval School</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
<th>SE</th>
<th>Min</th>
<th>Max</th>
<th>95% Confidence Lower Bound</th>
<th>95% Confidence Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>C</td>
<td>29</td>
<td>5.24</td>
<td>1.806</td>
<td>.539</td>
<td>2</td>
<td>9</td>
<td>4.55</td>
<td>5.93</td>
</tr>
<tr>
<td>A</td>
<td>20</td>
<td>6.45</td>
<td>1.905</td>
<td>.426</td>
<td>2</td>
<td>10</td>
<td>5.56</td>
<td>7.34</td>
</tr>
<tr>
<td>B</td>
<td>31</td>
<td>6.84</td>
<td>1.881</td>
<td>.338</td>
<td>0</td>
<td>11</td>
<td>6.15</td>
<td>7.53</td>
</tr>
<tr>
<td>D</td>
<td>10</td>
<td>8.30</td>
<td>1.703</td>
<td>.539</td>
<td>6</td>
<td>12</td>
<td>7.08</td>
<td>9.52</td>
</tr>
<tr>
<td>E</td>
<td>6</td>
<td>8.33</td>
<td>2.338</td>
<td>.955</td>
<td>6</td>
<td>11</td>
<td>5.88</td>
<td>10.79</td>
</tr>
<tr>
<td>Total</td>
<td>96</td>
<td>6.52</td>
<td>2.108</td>
<td>.215</td>
<td>0</td>
<td>12</td>
<td>6.09</td>
<td>6.95</td>
</tr>
<tr>
<td>Total (2)</td>
<td>86</td>
<td>6.31</td>
<td>2.059</td>
<td>.222</td>
<td>2</td>
<td>11</td>
<td>5.87</td>
<td>6.76</td>
</tr>
</tbody>
</table>

*Note.* Total (2) does not include school D (students self selected).

There was no statistically significant difference found between the mean scores of school A and school B or C. There was, however, a statistically significant difference found between the mean scores (1.6) of school B (M = 6.84) and C (M = 5.24) with p = .014 (see Table 6). These were the three schools that met the power calculation of .80.

The tables show both how individual students score (Table 5) on a validated instrument to measure their knowledge of the steps of EBP in the final semester of their M.S.W. program and the mean scores of the students grouped by school (Table 6). Mean
scores are also compared between all schools in the study (Table 6). These results were used to answer the primary research question.

Table 5

Correct Answers and Letter Grade on the Instrument, Main Study, All Sites

<table>
<thead>
<tr>
<th>N Students</th>
<th>% of Students</th>
<th>N Correct Answers</th>
<th>% Correct</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>0.0</td>
<td>0</td>
<td>0</td>
<td>E</td>
</tr>
<tr>
<td>0</td>
<td>0.0</td>
<td>1</td>
<td>7</td>
<td>E</td>
</tr>
<tr>
<td>2</td>
<td>2.3</td>
<td>2</td>
<td>13</td>
<td>E</td>
</tr>
<tr>
<td>7</td>
<td>8.1</td>
<td>3</td>
<td>20</td>
<td>E</td>
</tr>
<tr>
<td>10</td>
<td>11.6</td>
<td>4</td>
<td>27</td>
<td>E</td>
</tr>
<tr>
<td>7</td>
<td>8.1</td>
<td>5</td>
<td>33</td>
<td>E</td>
</tr>
<tr>
<td>19</td>
<td>22.1</td>
<td>6</td>
<td>40</td>
<td>E</td>
</tr>
<tr>
<td>18</td>
<td>20.9</td>
<td>7</td>
<td>47</td>
<td>E</td>
</tr>
<tr>
<td>12</td>
<td>14.0</td>
<td>8</td>
<td>53</td>
<td>E</td>
</tr>
<tr>
<td>6</td>
<td>7.0</td>
<td>9</td>
<td>60</td>
<td>D</td>
</tr>
<tr>
<td>2</td>
<td>2.3</td>
<td>10</td>
<td>67</td>
<td>DC</td>
</tr>
<tr>
<td>3</td>
<td>3.5</td>
<td>11</td>
<td>73</td>
<td>C</td>
</tr>
<tr>
<td>0</td>
<td>0.0</td>
<td>12</td>
<td>80</td>
<td>CB</td>
</tr>
<tr>
<td>0</td>
<td>0.0</td>
<td>13</td>
<td>87</td>
<td>B</td>
</tr>
<tr>
<td>0</td>
<td>0.0</td>
<td>14</td>
<td>93</td>
<td>BA</td>
</tr>
<tr>
<td>0</td>
<td>0.0</td>
<td>15</td>
<td>100</td>
<td>A</td>
</tr>
</tbody>
</table>

Note. Includes schools A, B, C, and E.
Table 6

*Mean Score Difference Between Schools*

<table>
<thead>
<tr>
<th>School</th>
<th>Comparison School</th>
<th>Mean Difference</th>
<th>Standard Error</th>
<th>Significance</th>
<th>Lower Bound</th>
<th>Upper Bound</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>B</td>
<td>-.389</td>
<td>.538</td>
<td>.998</td>
<td>-1.93</td>
<td>1.15</td>
</tr>
<tr>
<td></td>
<td>C</td>
<td>1.209</td>
<td>.545</td>
<td>.250</td>
<td>-.35</td>
<td>2.77</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>-1.850</td>
<td>.726</td>
<td>.117</td>
<td>-3.93</td>
<td>.23</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>-1.883</td>
<td>.873</td>
<td>.283</td>
<td>-4.38</td>
<td>.62</td>
</tr>
<tr>
<td>B</td>
<td>C</td>
<td>1.597</td>
<td>.484</td>
<td>.014*</td>
<td>.21</td>
<td>2.99</td>
</tr>
<tr>
<td></td>
<td>D</td>
<td>-1.461</td>
<td>.682</td>
<td>.292</td>
<td>-3.42</td>
<td>.49</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>-1.495</td>
<td>.836</td>
<td>.541</td>
<td>-3.89</td>
<td>.90</td>
</tr>
<tr>
<td>C</td>
<td>D</td>
<td>-3.059</td>
<td>.688</td>
<td>.000*</td>
<td>-5.03</td>
<td>-1.09</td>
</tr>
<tr>
<td></td>
<td>E</td>
<td>-3.092</td>
<td>.841</td>
<td>.004*</td>
<td>-5.50</td>
<td>-.68</td>
</tr>
<tr>
<td>D</td>
<td>E</td>
<td>-.033</td>
<td>.968</td>
<td>1.000</td>
<td>-2.81</td>
<td>2.74</td>
</tr>
</tbody>
</table>

*Note.* Results of Hochburg Post Hoc with all schools included.

One correlation sought was to determine if there was any relationship between a student's self-reported Grade Point Average (GPA) and their total score on the instrument. A positive statistically significant correlation was found (.365, *p* = .001) between their GPA and total score on the instrument. There was no statistically significant correlation between total score and students having read a book on EBP (.019, *p* = .863). No statistically significant correlation was found between the total score on the instrument and the number of EBP workshops that the students had attended of less than one day (.043, *p* = .691) with four students reporting that they attended. No statistically
significant correlation was found between total score on the instrument and the number of EBP workshops that the students had attended of one day or more (.117, \( p = .283 \)) with two students reporting that they had attended. Also, no statistically significant correlation was found between the student’s total score on the instrument and the student’s self-reported rating of their knowledge of EBP (.155, \( p = .157 \)).

No statistically significant correlation was found between total score and the number of students reporting taking a master’s level course in EBP (−.013, \( p = .906 \)). The total number of students reporting taking a master’s level course in EBP was 24 (28.2%) of the 85 students. Seventeen of students reporting taking a master’s course in EBP were from school B, 4 were from school A, and 3 from school C. School E had no students reporting taking a course in EBP.

No statistically significant correlation was found between total score and students taking a bachelor’s level course in EBP (−.123, \( p = .264 \)), master’s level course in EBP (−.041, \( p = .711 \)) and between total score and students taking bachelor’s level course with EBP as a topic (−.192, \( p = .079 \)). Also, there was no statistically significant correlation between the total score and the number of EBP courses (−.102, \( p = .369 \)) taken. There was, however, a statistically significant correlation between total score and total number of courses taken with EBP as a topic (.288, \( p = .013 \)).

There was a statistically significant correlation found between the total score and the number of students reporting taking a master’s level course with EBP as a topic (.268, \( p = .013 \)). The total number of students reporting taking a master’s level course with EBP as a topic was 37 (43.5%) (school A = 9, B = 17, C = 8, and E = 3) of the 85 students.
reporting. There was also a statistically significant correlation between total score and number of students taking a master’s level course (.279, \( p = .010 \)) with EBP as a topic.

There was a wide range in both the number of questions being answered correctly from 2 (2 students) to 11 (3 students). The mean number of questions answered correctly was 6.31, median 6.00, and the mode 6 (19 students). The number of students answering each question correctly ranged from zero (questions 14 and 15) to 75 (question 10) (see Figure 2).

Table 7 shows the number of students and percent of students that provided a positive response (\textit{agree} or \textit{strongly agree}) and negative response (\textit{disagree} or \textit{strongly disagree}) to the Likert questions. Not all students answered each question resulting in a different number of students for various questions.

Table 8 shows the correlations calculated for knowledge questions and attitude and perception questions corresponding to the steps of EBP using Spearman rho correlation.
Note: Questions 4, 5, 13, 14 correspond to Step 1 of EBP
Questions 6, 14, 15 correspond to Step 2 of EBP
Questions 7, 8, 9, 14 correspond to Step 3 of EBP
Questions 1, 2, 3, 10, 11, 14 correspond to Step 4 of EBP
Questions 12, 14 correspond to Step 5 of EBP

Figure 2. Percent of Students Answering Each Question Correctly
Table 7

*Student Response to EBP Attitude and Perception Questions*

<table>
<thead>
<tr>
<th>Question</th>
<th>Strongly Agree/Agree</th>
<th>Disagree/Strongly Disagree</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N Students</td>
<td>% Students</td>
</tr>
<tr>
<td>I know how to find appropriate research.</td>
<td>82</td>
<td>96.5</td>
</tr>
<tr>
<td>I have sufficient time to search for research.</td>
<td>47</td>
<td>55.3</td>
</tr>
<tr>
<td>Research articles are easy to find.</td>
<td>55</td>
<td>65.5</td>
</tr>
<tr>
<td>I am able to understand research articles.</td>
<td>76</td>
<td>89.4</td>
</tr>
<tr>
<td>I feel confident in judging the quality of research articles.</td>
<td>65</td>
<td>76.5</td>
</tr>
<tr>
<td>I am able to identify the implications of research findings for my own practice.</td>
<td>75</td>
<td>88.2</td>
</tr>
<tr>
<td>I feel confident about integrating EBP into my practice knowledge.</td>
<td>53</td>
<td>63.1</td>
</tr>
<tr>
<td>My school of social work supports EBP.</td>
<td>77</td>
<td>91.7</td>
</tr>
<tr>
<td>I have sufficient resources to integrate EBP into my practice knowledge.</td>
<td>55</td>
<td>66.3</td>
</tr>
<tr>
<td>My fellow students support the use of EBP.</td>
<td>70</td>
<td>85.4</td>
</tr>
<tr>
<td>My professors support the use of EBP.</td>
<td>75</td>
<td>89.3</td>
</tr>
<tr>
<td>I am able to find research evidence relevant to my practice interest.</td>
<td>78</td>
<td>91.8</td>
</tr>
<tr>
<td>I am able to use the library to locate research evidence.</td>
<td>78</td>
<td>91.8</td>
</tr>
<tr>
<td>I am able to use the internet to search for research evidence.</td>
<td>78</td>
<td>91.8</td>
</tr>
<tr>
<td>I am able to analyze research evidence.</td>
<td>72</td>
<td>84.7</td>
</tr>
<tr>
<td>I am able to apply research evidence to practice.</td>
<td>69</td>
<td>81.2</td>
</tr>
<tr>
<td>I will utilize EBP in my practice after I have received my M.S.W.</td>
<td>76</td>
<td>90.5</td>
</tr>
<tr>
<td>EBP is essential to the future of social work practice.</td>
<td>79</td>
<td>92.9</td>
</tr>
</tbody>
</table>
### Table 8

*Correlations Between Knowledge Questions and Attitude/Perception of EBP*

<table>
<thead>
<tr>
<th>Knowledge Question</th>
<th>Corresponding Attitude/Perception Questions</th>
<th>Correlation</th>
<th>Significance</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 2 EBP: Acquire research evidence.</strong></td>
<td>I know how to find appropriate research articles.</td>
<td>-.112</td>
<td>.307</td>
</tr>
<tr>
<td>6</td>
<td>Research articles are easy to find.</td>
<td>-.014</td>
<td>.896</td>
</tr>
<tr>
<td></td>
<td>I am able to find research evidence relevant to my practice interest.</td>
<td>-.095</td>
<td>.389</td>
</tr>
<tr>
<td></td>
<td>I am able to use the library to locate research evidence.</td>
<td>.010</td>
<td>.924</td>
</tr>
<tr>
<td></td>
<td>I am able to use the Internet to search for research evidence.</td>
<td>-.130</td>
<td>.236</td>
</tr>
<tr>
<td>15</td>
<td>Correlation could not be computed for the above Likert questions because no students answered question 15 correctly.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3 EBP: Analyze the evidence.</strong></td>
<td>I am able to understand research articles.</td>
<td>.127</td>
<td>.246</td>
</tr>
<tr>
<td>7</td>
<td>I feel confident in judging the quality of research articles.</td>
<td>-.014</td>
<td>.896</td>
</tr>
<tr>
<td></td>
<td>I am able to analyze research evidence.</td>
<td>.075</td>
<td>.498</td>
</tr>
<tr>
<td>8</td>
<td>I am able to understand research articles.</td>
<td>.216*</td>
<td>.047</td>
</tr>
<tr>
<td></td>
<td>I feel confident in judging the quality of research articles.</td>
<td>.037</td>
<td>.734</td>
</tr>
<tr>
<td></td>
<td>I am able to analyze research evidence.</td>
<td>.095</td>
<td>.386</td>
</tr>
<tr>
<td>9</td>
<td>I am able to understand research articles.</td>
<td>.195</td>
<td>.074</td>
</tr>
<tr>
<td></td>
<td>I feel confident in judging the quality of research articles.</td>
<td>.109</td>
<td>.319</td>
</tr>
<tr>
<td></td>
<td>I am able to analyze research articles.</td>
<td>.112</td>
<td>.310</td>
</tr>
<tr>
<td><strong>Step 4 EBP: Apply the evidence to practice.</strong></td>
<td>I am able to identify the implications of research findings for my own practice.</td>
<td>-.105</td>
<td>.337</td>
</tr>
<tr>
<td>1</td>
<td>I feel confident about integrating EBP into my practice knowledge.</td>
<td>-.147</td>
<td>.181</td>
</tr>
<tr>
<td></td>
<td>I am able to apply research evidence to practice.</td>
<td>-.151</td>
<td>.169</td>
</tr>
<tr>
<td></td>
<td>I will utilize EBP in my practice after I receive my M.S.W.</td>
<td>-.150</td>
<td>.174</td>
</tr>
<tr>
<td></td>
<td>EBP is essential to the future of social work practice.</td>
<td>-.064</td>
<td>.563</td>
</tr>
</tbody>
</table>
Table 8—Continued

<table>
<thead>
<tr>
<th></th>
<th>I am able to identify the implications of research findings for my own practice.</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>I feel confident about integrating EBP into my practice knowledge.</td>
<td>.051</td>
</tr>
<tr>
<td></td>
<td>I am able to apply research evidence to practice.</td>
<td>-.121</td>
</tr>
<tr>
<td></td>
<td>I will utilize EBP in my practice after I receive my M.S.W.</td>
<td>.049</td>
</tr>
<tr>
<td></td>
<td>EBP is essential to the future of social work practice.</td>
<td>.021</td>
</tr>
<tr>
<td>3</td>
<td>I am able to identify the implications of research findings for my own practice.</td>
<td>.115</td>
</tr>
<tr>
<td></td>
<td>I feel confident about integrating EBP into my practice knowledge.</td>
<td>.080</td>
</tr>
<tr>
<td></td>
<td>I am able to apply research evidence to practice.</td>
<td>.053</td>
</tr>
<tr>
<td></td>
<td>I will utilize EBP in my practice after I receive my M.S.W.</td>
<td>.063</td>
</tr>
<tr>
<td></td>
<td>EBP is essential to the future of social work practice.</td>
<td>.006</td>
</tr>
<tr>
<td>10</td>
<td>I am able to identify the implications of research findings for my own practice.</td>
<td>.086</td>
</tr>
<tr>
<td></td>
<td>I feel confident about integrating EBP into my practice knowledge.</td>
<td>.319**</td>
</tr>
<tr>
<td></td>
<td>I am able to apply research evidence to practice.</td>
<td>.313**</td>
</tr>
<tr>
<td></td>
<td>I will utilize EBP in my practice after I receive my M.S.W.</td>
<td>.232**</td>
</tr>
<tr>
<td></td>
<td>EBP is essential to the future of social work practice.</td>
<td>.124</td>
</tr>
<tr>
<td>11</td>
<td>I am able to identify the implications of research findings for my own practice.</td>
<td>-.008</td>
</tr>
<tr>
<td></td>
<td>I feel confident about integrating EBP into my practice knowledge.</td>
<td>.075</td>
</tr>
<tr>
<td></td>
<td>I am able to apply research evidence to practice.</td>
<td>-.005</td>
</tr>
<tr>
<td></td>
<td>I will utilize EBP in my practice after I receive my M.S.W.</td>
<td>-.020</td>
</tr>
<tr>
<td></td>
<td>EBP is essential to the future of social work practice.</td>
<td>-.027</td>
</tr>
</tbody>
</table>

* Correlation is statistically significant at the 0.05 level (two-tailed).
** Correlation is statistically significant at the 0.01 level (two-tailed).
CHAPTER V

DISCUSSION

Purpose

The purpose of this study was to administer a newly validated instrument to graduating M.S.W. students to measure their knowledge of the steps of EBP. This research was conducted in three phases. In the first phase, a measurement instrument and training module were developed. During the second phase, the instrument was validated in a pilot study at the Western Michigan University (WMU) School of Social Work. In the final phase, the validated instrument was administered to social work practice students in the final semester of their M.S.W. program at five accredited schools of social work in Michigan. The primary question to be answered in this research was: How well do students perform on a validated measure of knowledge of the steps of EBP in the last semester of their M.S.W. program?

Pilot Study

An instrument was developed to measure student knowledge of the steps of EBP and a training module was developed to teach students about the steps of EBP following the process used to validate the Berlin Questionnaire (Fritsche et al., 2002) in the field of medicine. The instrument and training module were reviewed by an expert panel and the dissertation committee for face validity. Based on feedback changes were made in the
instrument and submitted to the expert panel and committee for further feedback. Additional changes were made and no further feedback was sought from the expert panel. The instrument was administered to three cohorts in the school of social work at WMU: a practice cohort of first year M.S.W. students, a practice cohort of M.S.W. students in the final semester of their M.S.W. program, and a cohort of experts. The second year cohort was administered the instrument (pretest), provided the training module, and re-administered the instrument (posttest) during one class period. Findings showed that that first year students scored low on the instrument ($M = 3.57$). The Fritsche et al. (2002) study also found that the control group, that had little exposure to EBM, scored lowest on the instrument they developed, which is supported by the results of this study. Although the second year students scored higher ($M = 4.91$) on the instrument (pretest) than the first year students, this difference was not statistically significant. This difference was also found between the control group and course participants in the Fritsche et al. (2002) study. This lack of a statistically significant difference in the scores of first and second year M.S.W. students suggested that students are not learning about the steps of EBP in either their research or practice courses or that they are not retaining the information until graduation. These findings support and expand on the findings of the Smith et al. (2007) study that showed that even when social work student were taught to appraise evidence in foundation courses, they were unable to apply what they had learned.

There was a statistically significant difference in the scores of the first year students and the expert cohort, which supports the finding of the Fritsche et al. (2002) study. The statistically significant difference in the mean score of the second year pre ($M = 4.91$) and post ($M = 9.95$) test results suggest that a training module presented to a
group of second year M.S.W. students can significantly increase their scores on a validated instrument that measures knowledge of the steps of EBP. This also supports the results found in the Fritsche et al. study, which showed a significant improvement in mean scores in the posttest after receiving training on EBM.

There was not a statistically significant difference in the mean scores of the second year M.S.W. students ($M = 9.95$) and the expert cohort ($M = 11.86$). This may be due to the training module addressing all the questions of the instrument while the experts did not receive the training module. This result was not supported by the Fritsche et al. (2002) study. That study found that the experts scored significantly higher than the course participants that received the training course. It is not known why these two studies differ in the significance in mean scores of these cohorts; however, this may be due to more agreement within the field of medicine regarding the response to the specific questions on the instrument, while there may not be agreement within the field of social work on the correct response to the questions in the instrument in this study. Also, the criteria for expert and/or students may differ in the two studies.

The pilot study also supported the findings of the Fritsche et al. (2002) study in validating the instrument. The Fritsche et al. study resulted in a Cronbach’s alpha of $>.70$ and the results of the pilot study in this research resulted in a Cronbach’s alpha of $>.86$. These results suggest that a validated instrument can be developed to measure knowledge of the steps of EBP. The instrument in the current study followed a somewhat more rigorous process of validation than the Fritsche et al. study. The instrument in the current study was reviewed by an expert panel for face validity and was supported by the expert panel. Although this process was not included in the Fritsche et al. study, the authors may
have been experts in the field of medicine; however, this is not known. Fritsche et al. also utilized published research to determine the correct answer to the questions they posed in their instrument. Only the questions related to applying research to practice (questions 1 and 2) in the current study utilized published research to determine the correct answer.

It was hypothesized in the pilot study that the first year students would score lowest on the instrument, the second year students would score higher on the pretest than the first year students, the second year students would score higher on the posttest than they did on the pretest, and the experts would score higher than both student groups, based on the results of the Fritsche et al. (2002) study. These hypotheses were supported by the results of this study; however, a statistically significant difference was not found between first year student’s mean scores and the second year student’s pretest mean scores, and there was no statistically significant difference found between the second year student’s posttest mean scores and the expert cohort mean scores.

The pilot study was beneficial in developing a validated instrument that could be used to measure M.S.W. student knowledge of the steps of EBP. It was also helpful in identifying a problem with one of the questions (question 11). This question showed a Cronbach’s alpha of .87 if the item was deleted, which was higher than the overall Cronbach’s alpha .86. When calculating the corrected item total correlation, question 11 also showed a result of .083. However, a value of .3 or higher was needed to indicate that the item was correlated with the overall score of the scale (Field, 2009). This finding allowed the instrument to be improved by changing one of the wrong answers in question 11 prior to administering the instrument in the main study.
Main Study

Primary Findings

The primary question to be answered in this research was: How well do social work students perform on a validated measure of knowledge of the steps of EBP in the last semester of their M.S.W. program? It was also hypothesized that the graduating M.S.W. students on average would not score a passing grade on the validated instrument, based on a grading scale used by the researcher in social work courses taught (see Appendix D). This hypothesis was developed based on the pretest scores of the MSW students in the pilot study. The findings of this study supported this hypothesis and answered the research question. The majority of the students (94%) scored below 63% correct answers resulting in a grade of “D” or below with 87.2% scoring at or below 57% correct answers resulting in a failing grade (“E”) on the instrument. Only three students scored 11 correct answers resulting in a grade of “C.” The total mean score for all students from the four schools who met the inclusion criteria was 6.31 (42% correct answers), resulting in a failing grade for the total cohort. Also, no student was able to correctly identify the five steps of EBP.

One student wrote the following note on the instrument: “I am scared. I know nothing.” In one class, after completing the instrument, students asked if there were questions on the state (Michigan) licensing exam like those on the instrument and expressed concern if this were the case. These statements indicated that some students were concerned about their lack of knowledge of the steps of EBP and how it may affect their results on the state licensing exam.
The results from the main study supported those findings in the pilot study and suggest that M.S.W. students are not graduating from accredited M.S.W. programs, in Michigan, with complete knowledge of the steps of EBP. These results also support the results of the Smith et al. (2007) study. Research courses that are required by CSWE (2002) and practice courses, in the M.S.W. program, may not be adequately preparing students to utilize steps of evidence-based practice and as a result they may not be able to communicate evidence-based practice to their clients or utilize evidence-based interventions once they enter the work force.

When comparing schools, the mean score from school B ($M=6.84$) was higher than both school A ($M=6.45$) and school C ($M=5.24$); however, there was a statistically significant difference between schools B and C ($1.597, p = .014$). The practice class that the students at school B were taking was a course in Cognitive Behavioral Therapy, which is an EBP treatment model. However, there was no statistically significant correlation found between the total score and students reporting taking a bachelor’s level ($r = -.123$) or a master’s level ($r = -.038$) course in EBP. There was a statistically significant correlation between total score and students taking a master’s level course ($r = .268, p = .013$) with EBP as a topic. These results suggest that integrating EBP into other courses may be a more effective way for students to learn the steps of EBP than taking a course in EBP.

**Additional Findings**

Findings indicated no statistically significant correlation between students’ total score on the instrument and students’ self-reported rating of their knowledge of EBP ($r =
.155, \( p = .157 \)). Also 90.5% of the students indicate that they will utilize EBP in their practice after they have received their M.S.W. If 94% of the students scored below 63% correct answers on the validated instrument and 90.5% say they will utilize EBP in their practice it is unlikely they will be able to effectively apply the steps of EBP in practice due to lack of knowledge. However, they may be able to utilize EBP treatment models, i.e., CBT.

There was a statistically significant correlation between the total score and a student’s grade point average \( (r = .365, \ p = .001) \). These results suggested that students with a higher grade point average tend to score higher on the instrument, which may indicate that students with a higher grade point average may have more knowledge of the steps of EBP. However, few students scored a passing grade on the instrument with only three students scoring 11 correct answers. Grade point average did not correlate to a passing score, only an increase in score. This result suggests that utilizing grade point average as a measure of knowledge is not a good measure of knowledge of the steps of EBP.

**Faculty and school support for EBP.** Students report that faculty in the M.S.W. programs support the use of EBP with 75 (89.3%) students strongly agreeing or agreeing with the statement “My professors support the use of EBP.” This supports the results of the Rubin and Parrish (2007) study that found that 73% of the respondents (faculty) viewed EBP favorably or very favorably. While faculty may support EBP, this is not translating into students graduating with a high level of knowledge of the steps of EBP. As in the Rubin and Parrish study, the faculty at the universities in the current study may view evidence at the low end of a hierarchy (see Appendix B) as evidence-based and thus
support EBP; however, faculty in the Michigan schools were not surveyed to determine if this was the case. It is also unknown if this is related to teaching on the part of the faculty or learning on the part of the students.

In the Woody et al. (2006) study, faculty were committed to teaching evidence supported interventions (ESI) ($M = 24.67$, $SD = 8.14$); however, in the current study only 24 (28.2%) students reported taking a master’s level course in EBP and only 37 (43.5%) reported taking a master’s course with EBP as a topic. It is not known if all the universities in the current study offer specific courses in EBP or ESI or if there is some other factor that resulted in a low number of students taking EBP courses or courses with EBP as a topic. Also, the Woody et al. (2006) study surveyed faculty regarding specific ESI and not the steps of EBP or EBP in a broader context.

The Woody et al. (2006) study also found a commitment by the school to teaching ESI ($M = 19.00$, $SD = 9.05$). The current research also supports the results of the Woody et al. study finding 77 (91.7%) of the students responding strongly agree or agree to the statement “My school of social work supports EBP.”

Although faculty and schools in these studies and the current study suggest that social work faculty and schools of social work support EBP, only 28.2% of the students in the current study report taking a master’s level course in EBP and only 43.5% report taking a course with EBP as a topic. It is not known why students are not taking courses in EBP or courses with EBP as a topic. It may be that courses are not offered in EBP or that they may be offered as electives and students choose not to take them. It also could be a problem with students reporting or it could be a problem with lack of understanding of the definition of EBP or courses not being defined as EBP. However, CSWE in their
EPAS state, “The content prepares students to develop, use, and effectively communicate empirically based knowledge, including evidence-based interventions” (CSWE, 2002, p. 10). Therefore, students should at a minimum be taking a course with EBP as a topic. It may also be that there is a difference in language used within courses. EBP may be presented as evidence-supported treatments, evidence-supported interventions, empirically based treatments or interventions, scientifically based treatments and interventions, etc. No definition of EBP was presented to students in the current study for students to determine their response to the questions related to faculty and school support for EBP. This may limit any inferences that can be made from the students’ answers to these questions since they may be utilizing different definitions of EBP.

These results suggested that M.S.W. programs are not graduating students prepared to implement EBP in the workplace supporting the findings of the Cody (2007) study. Also, students are not attending workshops on EBP to increase their knowledge of EBP. Only three students reported attending a workshop of EBP of less than one day in duration and only two students reported attending a workshop of EBP of one day or more. This may be due to the lack of availability of EBP workshops. There was a no statistically significant correlation between the total score on the instrument and workshops attended. It also may be a power issue because so few students reported attending EBP workshops. The Cody study found that 82% of states reported a shortage of appropriately trained workforce as a barrier to implementing EBP in public mental health. The results of the current study support these findings and suggest that the majority of M.S.W. students are not graduating with knowledge of the steps of EBP and may not be receiving specific EBP training from M.S.W. programs.
Knowledge versus attitude and perception. The instrument in the current study included questions related to each of five steps of EBP. There were also 18 Likert scale questions related to attitude and perception of EBP. Some of these attitude and perception questions related to steps 2, 3, and 4 of EBP. Correlations were sought to determine if there were any correlations between knowledge and attitude/perception. There were few statistically significant correlations found between knowledge and the attitude/perception of EBP.

Relative to step 3 of EBP, there was a statistically significant correlation found between question 8 (knowledge question) and students’ response to “I am able to understand research articles” \( (r = .216, p = .047) \). However, only 44.2% of the students answered question 8 correctly. This suggests that the majority of the students do not understand the Number Needed to Treat and may not have the knowledge necessary to understand research articles, even though they perceive that they are able to understand research articles. This supports the Smith et al. (2007) study that showed that students were not able to appraise the evidence and their perception of their knowledge was higher than their demonstrated knowledge.

There was also a statistically significant correlation found between question 10 and the response to “I feel confident about integrating EBP into my practice knowledge \( (r = .319, p = .003) \), “I am able to apply research evidence to practice \( (r = .313, p = .004) \), and “I will utilize EBP in my practice after I receive my M.S.W.” \( (r = .232, p = .034) \). While these correlations show that students’ attitude/perception have a positive correlation to their knowledge on one question measuring knowledge of application of EBP, the overall scores of the students do not indicate that they have the knowledge of
the steps of EBP. The majority of students responded agree or strongly agree to all the attitude/perception questions with a range from 55.3% (I have sufficient time to search for research) to 96.5% (I know how to find appropriate research). This suggests that students have a positive attitude/perception about their knowledge and ability to utilize EBP; however, their overall mean score (6.31) does not suggest that they have the knowledge necessary to utilize the steps of EBP. This also supports the findings of the Smith et al. (2007) study, which showed an elevated attitude compared to aptitude. Also, 44.7% (N = 38) of the students responded disagree or strongly disagree to “I have sufficient time to search for research,” indicating that time is perceived as a factor in utilizing evidence in practice. This was also the question with the highest percent of disagree or strongly disagree responses.

Conclusions

The results of the current study indicated that social work students, in the last semester of their M.S.W program, score low on a validated instrument to measure their knowledge of the steps of EBP. The data suggest that students are graduating from M.S.W. programs in Michigan without a high level of knowledge of the steps of EBP necessary to apply these steps in practice. This may be due to students not taking courses in EBP or courses with EBP as a topic. Also, EBP courses may not be offered and if offered may not be required courses.

The data also suggest that M.S.W. programs in Michigan may not be meeting the CSWE (2002) Education Policies and Standards mandate related to students acquiring the knowledge “to communicate empirically based knowledge, including evidence-based
interventions” (p. 10). Students have an elevated attitude/perception about their knowledge and ability to apply the steps of EBP to practice compared to their measured knowledge. This may be due to a general lack of understanding of the steps of EBP. It may also be related to a social desirability bias in responses.

Second year M.S.W. students in the pilot study scored statistically significant higher mean scores after being administered the training module. These results indicate that students’ immediate recall knowledge can be significantly increased by receiving an EBP training module. However, because repeated measures data were not collected or calculated, it is unknown if they could retain the information over time.

Cautions should be used when attempting to generalize the results of the current study to the population of graduating M.S.W. students in Michigan or the U.S.; however, the current study is the first study that attempts to measure M.S.W. student knowledge of the steps of EBP and provides important tools and results for further measurement and research.

**Limitations**

**Pilot Study**

There has been little research done to measure social work student knowledge of EBP. No research was found that surveyed social work students’ attitudes about and/or perceptions of EBP. Therefore, it was necessary to review instruments that were developed in other fields. The Fritsche et al. (2002) study, in medicine, was chosen as a framework for validating an instrument to measure knowledge of EBP and the Gerrish...
et al. study (2007), in nursing, was chosen for additional questions to determine students’ attitude toward and perception of EBP. Both had to be adapted for the current study. Because these were not focused on social work, an expert panel was recruited to review the instrument for face validity. The definition of expert used in the current research was that the expert must have written an article(s) and/or book(s) on EBP. Originally five experts were recruited. There was a time lapse between the time they were recruited and when the instrument was submitted to them for review. Once the instrument and training module were submitted to the expert panel, two of the experts declined to participate for personal reasons. Because the current study was time sensitive, there was not sufficient time to recruit additional experts to review the instrument and training module. All other experts identified in the literature review were recruited with the intention of administering the instrument to them. This resulted in only three experts providing review and feedback on the instrument. More experts reviewing and providing feedback would have provided a broader review and perspective than occurred. However, two members of the dissertation committee were social workers, which also provided additional opportunity for social work input to strengthen face validity.

Recruiting a cohort of experts to whom the instrument would be administered was also a challenge. Initially 24 experts were identified and sent an email to determine if they would be interested in participating in the project. Sixteen responded indicating they would be interested in participating. Only eight completed the instrument, even though follow-up emails were sent to those who had agreed to participate and didn’t. One of the experts who completed the instrument indicated that he was not in practice and only answered one question and was not included in the results. This resulted in only seven
experts completing the instrument who were included in the study. Power calculations required 13 in each cohort to acquire a power of .80 for comparison of cohorts. This may have resulted in participation bias. Again, due to time sensitivity, there was not time to recruit additional experts. Also, there were a limited number of individuals that met the criteria to be included.

Only one school of social work in one state was used to pilot the instrument. This limited the ability to generalize these results. In a more comprehensive research study, piloting in more than one school may have strengthened the results and limited Type I errors by increasing sample size and also increasing the number of comparison groups. Only one class in each student cohort was involved in the study. Additional cohorts to allow for comparison may have strengthened the results. The second year cohort was administered the instrument only at one time as a posttest. Utilizing a repeated measure method may have strengthened the results by measuring student retention of the knowledge over time rather than immediate recall.

None of the cohorts were recruited based on a random sampling. The expert cohort was based on the total population found in the literature review and may have resulted in a volunteer bias. Both the student cohorts were availability samples. The first year cohort was the only cohort during the winter 2009 semester that met the inclusion criteria. The second year cohort was chosen based on availability. Had more schools, classes, and students been recruited for the student cohorts, a random sampling may have been possible. At a minimum, comparisons could have been made to determine if the results were based on some variable other than the specific group of students selected.
The instrument followed the Berlin Questionnaire framework with only 15 questions. A more comprehensive test with more questions may have had different results. The Likert scale questions only had four categories. This required the respondents to respond in a positive or negative direction. This did not allow respondents to make a neutral response if their position was in fact neutral, which may have resulted in students responding based on the options rather than their actual attitude/perception.

The training module was adapted from the training modules developed by Columbia University (Mullen et al., 2007), which taught EBP more broadly through the presentation of 10 modules. Also, EBM that was taught in the Fritsche et al. (2002) was taught over a three-day course. The training module for the current research was presented during one class period taking approximately 1 hour and 30 minutes. While answers to all questions in the instrument were covered, the training module did not provide a comprehensive training on EBP. There was, however, a statistically significant change in mean scores between the pre- and posttest in the second year cohort.

Cronbach’s alpha increases as the number of questions increases past 12 questions. It is possible that the Cronbach’s alpha resulted in a .86 due to the number of questions; however, reliability testing was done removing three questions and the same alpha was found. Calculations were not made with all permutations of three questions being removed.

Main Study

For this dissertation study an availability sample of M.S.W. students from only schools of social work in one state was included limiting the ability to generalize the
results to all graduating M.S.W. students. Attempts were made to involve all schools in Michigan in the study; however, one school was not included due to lack of participation and one cohort of students was not included because students self-selected. Only three (schools A, B, and C) of the six schools eligible for the main study had enough students to meet the power level of .80.

All students participating in the study were recruited based on instructors’ willingness to allow their students to participate. This may have resulted in a selection bias. A random sampling of all students meeting the inclusion criteria may have resulted in a sample that more closely matched the population; however, all schools wanted to forward the request for participants rather than providing a list of courses and instructors that met the inclusion criteria to allow for random sampling. One school (school D) would not forward the request to instructors because they had a policy that did not allow research to be conducted in the classroom. Those students were sent an email through a list serve to ask for their participation and only students that replied were administered the instrument. In this school the instrument was administered in a common area in the school of social work or by email. The mean scores for these students were higher than the means scores of the students from the three schools who met a power of .80 (schools A, B, and C) but lower than the students in the school (school E) that did not have enough students to meet a power of .80. This may be because they self-selected. No other group was self-selected so it was not possible to determine if this may be why they scored higher. These students were not included due to self-selection.

Only 86 students in one state met the criteria for inclusion in the study; however, the goal was 78. The results may have been strengthened with a larger sample from a
several states. For the purpose of this dissertation study, the number of students was determined to be adequate. The results, however, should not be generalized to the entire graduating class of M.S.W. students for 2009, nor can they be generalized to all graduating M.S.W. students in Michigan. Such a generalization could result in an increase in Type I errors.

**Recommendations**

Social workers provide more mental health services in the United States than any other discipline (NASW, 2005) and the President’s New Freedom Commission on Mental Health (2002) has encouraged the transformation of the mental health system in the U.S. to EBP driven system. A shortage of an appropriately trained workforce has been reported as a barrier to implementing EBP in public mental health (Cody, 2007). Schools of social work must take a more effective approach to ensure students leave M.S.W. programs with the knowledge necessary to apply the steps of EBP to practice. As M.S.W. programs integrate EBP into their curricula, it is important that they also measure the outcomes of students’ learning to gather evidence regarding the effectiveness of the instruction and potential need for modification. This research indicated that integrating EBP into courses as a topic has a greater influence on student knowledge than taking a course on EBP. Therefore, teaching specific skills and knowledge of the steps of EBP should be integrated into social work research and practice courses. Data imply that few students are taking specific courses on EBP. More courses should be offered and required that focus specifically on EBP.
It is recommended that CSWE develop policies and standards that have language that is more specific to EBP and clearly define EBP within their policies and standards. It is also suggested that CSWE develop a review process that ensures that they are able to measure compliance of the policies and standards based on student and/or client outcomes. The results suggest that the current accreditation process may not ensure that students graduating from M.S.W. programs have acquired the knowledge necessary to implement the steps of EBP in practice.

Further research is necessary to determine if the results of this study can be generalized to other M.S.W. programs. This instrument will be made available to universities across the nation, upon request, to be administered to students entering the M.S.W. program (pretest) and administered to students in the final semester of their M.S.W. program (posttest) to determine if students are increasing their knowledge of EBP while in the program. The training module will also be made available, upon request, to provide an overview training of EBP. The training module could be used in a workshop setting or integrated into a research or practice course. While the instrument in this study was determined to be a valid instrument to measure student knowledge of the steps of EBP, a more in-depth instrument could be developed to determine what additional variables impact knowledge of the steps of EBP. Also, there continues to be disagreement within the field about what constitutes evidence, the definition of EBP, and the importance of EBP to the field of social work. These differences need to be resolved so students across the nation can receive consistent information about what constitutes best available evidence and the definition of EBP in social work practice.
Additional research is needed to determine if students are utilizing EBP once they are in practice and to identify barriers that exist to implementing EBP, especially in mental health system. The National Research Institute should continue to gather data on EBP in mental health to identify barriers to implementation of EBP. Strategies to address these barriers need to be developed and implemented at the local, state, and national level. States need to partner with universities to ensure that an adequately trained workforce is entering the field in order to meet the goal of the President’s New Freedom Commission on Mental Health: to transform the mental health system to an EBP based mental health system and to ensure that clients are receiving the most effective interventions to address the issues they bring to practicing social workers. Curriculum content in M.S.W. programs and the accreditation process must be scrutinized. It is paramount that students graduate with the knowledge to implement the steps of EBP in practice, and the results of the current study suggested a lack of preparedness.

The field of social work is at a crossroads especially in the provision of mental health services. Will it continue to be a field guided by authority and tradition (Gambrill, 1999), or will it lead the industry and become a profession guided by the best available evidence (Gibbs, 2007)? The current research suggests that CSWE accredited programs in this study have not embraced EBP.

Social workers are in a key position to impact the transformation of the mental health industry to EBP because social workers provide more mental health services than any other discipline and more social workers are training to work in mental health than any other domain (NASW, 2005). However, the results of the current research suggest that social workers with M.S.W.s are not entering the workforce prepared to implement
EBP. To meet the demands of the mental health field it is essential that M.S.W. programs prepare students to implement EBP in practice. The current research suggests that M.S.W. programs may not be responding to the workforce needs of the mental health field.

It is time for CSWE accredited M.S.W. programs to respond to the workforce needs by embracing EBP and to prepare students to implement EBP once they enter practice. To accomplish this, the field will first need to come to a consensus regarding a definition of EBP. A hierarchy of evidence, to identify what is sufficient evidence to determine a social work intervention to be effective, will also need to be developed so M.S.W. students nationally can receive consistent information and training about EBP. M.S.W. programs that do not offer specific courses on EBP and specific evidence-based interventions should develop and offer these courses to their students.

Teaching the steps of EBP to M.S.W. students will be an important step in transforming the field of social work to a field guided by EBP rather than the authority and tradition. The current research offers the field a training module that has been shown to be effective in increasing M.S.W. student knowledge of the steps of EBP and a validated instrument to measure this knowledge. Armed with these two tools, social work faculty can take a step to ensure that M.S.W. students graduate with the knowledge of the steps of EBP.
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Appendix A

Definitions of Variables and Terminology Used in This Study
Box. Definitions of Variables and Terminology Used in This Study

Description: Format of instrument; choices include written or Web-based test, self-report survey, OSCE with standardized patients, other OSCE, portfolio, audiotape of teaching sessions, record audit, chart-stimulated recall, direct observation (clinical evaluation exercise), rating scale, and other

Development: Free-text description of development

EBP domains

Knowledge: Knowledge about EBP
Skills: EBP skills are distinguished from knowledge by participants applying their knowledge by performing EBP steps in some type of clinical scenario, such as with a standardized patient, written case, computer simulation, OSCE, or direct observation.

Ask: Converting the need for information (about prevention, diagnosis, prognosis, therapy, causation, etc) into an answerable question
Acquire: Tracking down the best evidence with which to answer that question
Appraise: Critically appraising that evidence for its validity (closeness to the truth), impact (size of the effect), and applicability (usefulness in one’s own clinical practice)
Apply: Applying the evidence in clinical decision making (includes both individualizing the evidence [such as recasting number needed to treat for the patient’s baseline risk] and integrating the evidence with the patient’s preferences and particular clinical circumstances)

Attitude: Attitudes toward EBP

Behaviors: Actual performance of EBP in practice

Enacting EBP steps in practice: Actually enacting EBP steps (such as identifying clinical questions) in the course of patient care activities
Performing evidence-based clinical maneuvers: Performing evidence-based maneuvers in trainee’s actual practice, such as prescribing angiotensin-converting enzyme inhibitors for congestive heart failure with depressed left ventricular function or checking hemoglobin A1c in patients with diabetes

Affecting patient outcomes: Trainee’s patients experience improved or favorable outcomes, such as lower blood pressure

Feasibility: Documentation of some measure of ease of implementation; choices include time required to administer instrument, time required to score instrument, expertise required to score instrument, cost to administer and score, administrative support required, other

Interrater reliability: Statistical test (or correlation coefficient) of the agreement among 2 or more raters’ scoring of the responses. Applied only to instruments that required some level of judgment to score, such as free-text responses. In contrast, reliability testing was deemed not applicable for instruments that required no rater judgment to score, such as multiple choice tests. Credited as “tested” if a quantitative assessment was done. Credited as “established” if the corresponding statistical test was significant.

Participants (number, discipline, and level): Participants in whom the instrument was tested; options include undergraduate medical students (year), residents (specialty), fellows (specialty), faculty physicians, practicing physicians, nurses in training, practicing nurses, allied health professionals, and other health care professionals

Validity: For all types except content validity, credited as “tested” if a quantitative assessment of a particular type of validity was done; credited as “established” if the corresponding statistical test was significant

Based on content: External review of the instrument by experts in EBP

Based on internal structure

Internal consistency: Statistical test to establish the relationship between items within either the entire instrument or a prespecified section of the instrument
Dimensionality: Factor analysis to determine if the instrument measured a unified latent construct or, if specified in advance, discrete subthemes

Based on relationship to other variables

Responsive: Ability to detect the impact of an EBP educational intervention; requires statistical comparison of same participant’s scores before and after an EBP educational intervention
**Discriminative:** Ability to discriminate between participants with different levels of EBP expertise; requires statistical comparison of instrument scores among participants of different levels of EBP ability

**Criterion:** Statistical test of the relationship between the instrument scores and participants’ scores on another instrument with established psychometric properties

Abbreviations: EBP, evidence-based practice; OSCE, observed structured clinical examination.

*Classification of validity is based on the Standards for Educational and Psychological Testing of the Joint Committee on Standards for Educational and Psychological Testing of the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education* 14 and other recommendations. 15,16

(Shaneyfelt et al., 2006, p. 1117)
Appendix B

Hierarchy of Evidence
Faculty Perceptions of Sufficient Evidence for Deeming an Intervention Empirically Supported or for Teaching It as Evidence Based

<table>
<thead>
<tr>
<th>Type of Support/Evidence</th>
<th>Empirically Supported, %</th>
<th>Teaching Intervention as evidence Based, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anecdotal case reports</td>
<td>13.5</td>
<td>14.8</td>
</tr>
<tr>
<td></td>
<td>75.4</td>
<td>73.4</td>
</tr>
<tr>
<td></td>
<td>11.0</td>
<td>11.6</td>
</tr>
<tr>
<td>Unfamiliar with terminology</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>Intervention deemed empirically supported by a prestigious professional organization</td>
<td>23.3</td>
<td>26.2</td>
</tr>
<tr>
<td></td>
<td>52.7</td>
<td>54.1</td>
</tr>
<tr>
<td></td>
<td>24.0</td>
<td>19.6</td>
</tr>
<tr>
<td>Experiments or quasi-experiments</td>
<td>93.6</td>
<td>92.5</td>
</tr>
<tr>
<td></td>
<td>2.4</td>
<td>3.2</td>
</tr>
<tr>
<td></td>
<td>3.9</td>
<td>4.3</td>
</tr>
<tr>
<td>Pretest–posttest studies without a control group</td>
<td>41.0</td>
<td>41.5</td>
</tr>
<tr>
<td></td>
<td>38.5</td>
<td>40.4</td>
</tr>
<tr>
<td></td>
<td>20.5</td>
<td>18.1</td>
</tr>
<tr>
<td>Qualitative studies describing client outcomes after an intervention</td>
<td>51.5</td>
<td>50.3</td>
</tr>
<tr>
<td></td>
<td>29.8</td>
<td>32.8</td>
</tr>
<tr>
<td></td>
<td>18.7</td>
<td>16.8</td>
</tr>
<tr>
<td>Unfamiliar with terminology</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>Single-case design outcome evaluations</td>
<td>44.6</td>
<td>44.3</td>
</tr>
<tr>
<td></td>
<td>35.7</td>
<td>37.5</td>
</tr>
<tr>
<td></td>
<td>19.6</td>
<td>18.1</td>
</tr>
<tr>
<td>Unfamiliar with terminology</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>Surveys of clients as to what they think helped them</td>
<td>34.0</td>
<td>34.0</td>
</tr>
<tr>
<td></td>
<td>44.9</td>
<td>48.0</td>
</tr>
<tr>
<td></td>
<td>21.1</td>
<td>18.0</td>
</tr>
<tr>
<td>Unfamiliar with terminology</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>Surveys of practitioners as to what they think is effective</td>
<td>24.1</td>
<td>24.1</td>
</tr>
<tr>
<td></td>
<td>56.2</td>
<td>57.0</td>
</tr>
<tr>
<td></td>
<td>19.7</td>
<td>18.9</td>
</tr>
<tr>
<td>Other kinds of evidence</td>
<td>10.9</td>
<td>9.0</td>
</tr>
<tr>
<td></td>
<td>0.8</td>
<td>0.7</td>
</tr>
<tr>
<td></td>
<td>0.9</td>
<td>1.3</td>
</tr>
</tbody>
</table>

(Rubin & Parish, 2007, p. 116)
Appendix C

Answer Key for Instrument
Answer Key for Evidence-Based Practice (EBP) Questionnaire for Social Workers

1. d
2. b
3. c
4. b
5. b
6. b
7. c
8. d
9. c
10. d
11. c
12. c
13. c
14. 2 Acquire research evidence
    1. Ask a researchable question

    Apply Social Work Ethics

    Acquire consent to treat

    Ask your client what the presenting problem is

    Assess the outcome

    Analyze the evidence

    Analyze the diagnostic criteria

    Apply the evidence to practice

15.

Possible answers: Cochran Collaboration, Campbell Collaboration, Centre for Clinical Effectiveness, Monash Institute of Public Health, Centre for Reviews and Dissemination (CRD), Database of Abstracts of Reviews of Effects (DARE), National Coordinating Centre for Health Technology Assessment (NCCHTA), National Health Services Centre for Reviews and Dissemination (NHS CRD), Swedish Council on Technology Assessment in Health Care (SBU)
<table>
<thead>
<tr>
<th>Grade</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>94-100%</td>
</tr>
<tr>
<td>BA</td>
<td>88-93%</td>
</tr>
<tr>
<td>B</td>
<td>82-87%</td>
</tr>
<tr>
<td>CB</td>
<td>76-81%</td>
</tr>
<tr>
<td>C</td>
<td>70-75%</td>
</tr>
<tr>
<td>DC</td>
<td>64-69%</td>
</tr>
<tr>
<td>D</td>
<td>58-63%</td>
</tr>
<tr>
<td>E</td>
<td>0-57%</td>
</tr>
</tbody>
</table>
Appendix E

Instrument for Pilot Study (Student)
Evidence-Based Practice (EBP) Questionnaire for Social Workers

Name:__________________________________________________________

Course Number:________________________________________________

Age:_________ Gender: □ Male □ Female

☐ I would like to receive my score. My email address is:_________________________

Previous Education: (For all that apply, check the box and fill in the blank)
☐ Bachelors Degree - Field or Discipline:

☐ Masters Degree - Field or Discipline:

☐ Doctorate - Field or Discipline:

☐ Other – Please specify: ________________________________

☐ I have read a book on EBP

☐ I have attended an EBP workshop (less than one day) How many: _______

☐ I have attended an EBP workshop (one day or more) How many: _______

☐ I have served as a tutor/facilitator/trainer in another EBP workshop

☐ I have taken a college course in EBP What Level: ☐ Bachelor ☐ Masters ☐ Doctorate

☐ I have taken a college course with EBP as a topic What Level: ☐ Bachelor ☐ Masters ☐ Doctorate

Check the box that best represents your response.

I would rate my knowledge of EBP as:
☐ None ☐ Little ☐ Average ☐ Advanced ☐ Expert

Please circle the most appropriate answer for questions 1 through 13.

1. A couple presents with the complaint that the wife is experiencing symptoms of depression. She is having difficulty concentrating, feeling sad, has trouble making decisions and difficulty sleeping. Your assessment indicates that she meets the diagnostic criteria for depression and marital discourse does not appear to be the cause of the depression. The couple requests marital therapy to treat the depression. Based on a systematic review you should:
a. Provide marital treatment because it is found to be the most effective treatment for depression.
b. Provide individual therapy because it is found to be the most effective treatment for depression
c. Provide drug therapy because it is found to be the most effective treatment for depression
d. Explain to the client that marital therapy has not been found to be any more effective in treating depression than individual or drug therapy and decide with your client what course of action to take

2. A 16-year-old male has a history of intimidating others in school, initiating fights with others and has been convicted of purse snatching and breaking and entering. This is his first conviction. Your assessment indicates that he meets the diagnostic criteria for conduct disorder. Based on your assessment and the results of a systematic review you should?

a. Provide family therapy because it is found to be the most effective treatment for conduct disorders
b. Inform the client that no one treatment has been found to be more effective than another for the presenting problem and decide with your client what course of action to take
c. Provide Multisystemic Therapy because it is found to be the most effective treatment for conduct disorders
d. Provide Group therapy because it is found to be the most effective treatment for conduct disorders

3. All but which one of the following would be a valid reason for utilizing EBP in social work.

a. It provides a framework for self directed life long learning
b. It provides a common interdisciplinary language
c. A professor you respect has told you what intervention would be most effective.
d. It promotes social work ethics
e. It incorporates client values and expectations

4. All but which one of the following is a characteristic of a researchable question?

a. It is relevant to practice
b. It supports your hypothesis
c. It is not be something for which you already know the answer
d. It is specific
e. It is measurable
5. All but which one of the following is a question type?
   a. Effectiveness
   b. Research
   c. Prevention
   d. Assessment
   e. Descriptive
   f. Risk

6. When searching for evidence you should start with?
   a. Reviewing articles in professional journals
   b. Reviewing meta analyses and systematic reviews
   c. Ask colleagues about their experience
   d. Programs that your organization provides
   e. Books on social work practice

7. When analyzing the evidence to determine if it is the appropriate best evidence to determine if an intervention is effective, you should consider all but which one of the following:
   a. Statistical significance
   b. Absolute risk reduction
   c. Frequency of utilization
   d. Number needed to treat
   e. Number needed to harm

8. What is the number needed to treat if: of the 300 subjects who received an intervention, 200 subjects had a successful outcome and of the 300 subjects in the control group, 50 had successful outcomes.
   a. 1
   b. 2
   c. 3
   d. 4
   e. 5

9. Which is the most common level of statistical significance used in social science research?
   a. .01
   b. .10
   c. .05
   d. .25
   e. .001
10. Based on your search finding, you determine the intervention that will have the best chance for success with your client is a combination of medication and cognitive behavioral therapy (CBT) however you are not trained in CBT. What would be your best course of action to serve your client?

a. Provide individual therapy because you have an expertise in this modality and have had good experience with this type of problem in the past.
b. Refer the client for a medication evaluation and treat with the most effective medication.
c. Put the client on a waiting list and acquire training in CBT
d. Inform the client of your findings. Determine the best course of action with your client.

11. You have become certified to provide Dialectic Behavioral Therapy (DBT). This therapy has been found to be effective with adult females with self-harm behaviors. You receive a number of referrals to treat this population. To evaluate the effectiveness of your interventions you should track and record all but which of the following:

a. Client satisfaction
b. How often the intervention is given
c. The number of times you have applied the intervention
d. Outcomes

12. All but which one of the following is a reason to collect data in practice?

a. It is important to make your own observations
b. Extrapolating from research to your own clients may still put them at risk
c. To meet agency data collection requirements
d. The data collection process may serve client preferences directly
e. Client input is important for determining successful outcomes

13. All but which of the following are elements of a researchable question?

a. Client type and problem
b. What you might do
c. When you will provide the intervention
d. Alternative course of action
e. What you want to accomplish (goal)
14. From the list below identify the steps of EBP and put them in order by placing a
number in the blank to indicate the order of the steps. (e.g. “1” would indicate the first
step, “2” would indicate the second step, etc.)

2. Acquire research evidence
1. Ask a researchable question
____ Apply Social Work Ethics
____ Acquire consent to treat
____ Ask your client what the presenting problem is
5. Assess the outcome
3. Analyze the evidence
____ Analyze the diagnostic criteria
4. Apply the evidence to practice
____ Assess the effectiveness of your search

15. Name one source of systematic reviews. __________________________

Please place the number (1 thru 4) in the blank next to each statement that best represents
your answer. The numbers represent the following responses:

1 = Strongly Agree
2 = Agree
3 = Disagree
4 = Strongly Disagree

____ I do not know how to find appropriate research articles.
____ I do not have sufficient time to search for research articles.
____ Research articles are not easy to find.
____ I find it difficult to understand research articles.
____ I do not feel confident in judging the quality of research articles.
____ I find it difficult to identify the implications of research findings for my own
  practice.
____ I do not feel confident about integrating EBP into my practice knowledge.
____ My school does not support EBP.
____ I do not have sufficient resources to integrate EBP into my practice knowledge.
____ My fellow students support the use of EBP.
____ My professors support the use of EBP.
____ I am able to find research evidence relevant to my practice interest.
____ I am able to use the library to locate research evidence.
____ I am able to use the Internet to search for research evidence.
____ I am able to analyze research evidence.
____ I am able to apply research evidence to practice.
____ I will utilize EBP in my practice after I receive my M.S.W.
____ EBP is essential to the future of social work practice.
Appendix F

Instrument for Pilot Study (Expert)
Evidence-Based Practice (EBP) Questionnaire
for Social Workers

Age: ____________

Gender: □ Male □ Female

Previous Education/Experience: (For all that apply, check the box and fill in the blank)
□ Bachelors Degree - Field or Discipline: __________________________________________

□ Masters Degree - Field or Discipline: __________________________________________

□ Doctorate - Field or Discipline: ______________________________________________

□ Other – Please specify: _______________________________________________________

□ I have read a book on EBP
□ I have attended an EBP workshop (less than one day in length) How many?: _________
□ I have attended an EBP workshop (one day or more in length) How many?: __________
□ I have served as a tutor/facilitator/trainer in another EBP workshop
□ I have completed one or more college courses in EBP (number of courses taken ___)
  What Level: □ Bachelor □ Masters □ Doctorate
□ I have taken one or more college courses with EBP as a topic (number of courses
taken ___) What Level: □ Bachelor □ Masters □ Doctorate
□ I have authored or co-authored one or more articles on EBP (number of articles _____).
□ I have authored or co-authored one or more books on EBP (number of books ____).
□ I have authored or co-authored one or more book chapters on EBP (number of
chapters ____).
□ I have presented an EBP presentation at a conference (number of conferences ____).
□ I have taught one or more different courses on EBP (number of courses _____).
□ I have completed clinical research on EBP (number of studies _____).
□ I have competed non-clinical research on EBP (number of studies ____).

Check the box that best represents your response.

I would rate my knowledge of EBP as:
□ None □ Novice □ Average □ Advanced □ Expert
Please circle the most appropriate answer for questions 1 through 13.

1. A couple presents with the complaint that the wife is experiencing symptoms of depression. She is having difficulty concentrating, feeling sad, has trouble making decisions and difficulty sleeping. Your assessment indicates that she meets the diagnostic criteria for depression and marital discourse does not appear to be the cause of the depression. The couple requests marital therapy to treat the depression. Based on a systematic review you should:

   a. Provide marital treatment because it is found to be the most effective treatment for depression.
   b. Provide individual therapy because it is found to be the most effective treatment for depression.
   c. Provide drug therapy because it is found to be the most effective treatment for depression.
   d. Explain to the client that marital therapy has not been found to be any more effective in treating depression than individual or drug therapy and decide with your client what course of action to take.

2. A 16-year-old male has a history of intimidating others in school, initiating fights with others and has been convicted of purse snatching and breaking and entering. This is his first conviction. Your assessment indicates that he meets the diagnostic criteria for conduct disorder. Based on your assessment and the results of a systematic review you should:

   a. Provide family therapy because it is found to be the most effective treatment for conduct disorders.
   b. Inform the client that no one treatment has been found to be more effective than another for the presenting problem and decide with your client what course of action to take.
   c. Provide Multisystemic Therapy because it is found to be the most effective treatment for conduct disorders.
   d. Provide Group therapy because it is found to be the most effective treatment for conduct disorders.

3. All but which one of the following would be a valid reason for utilizing EBP in social work:

   a. It provides a framework for self-directed life-long learning.
   b. It provides a common interdisciplinary language.
   c. A professor you respect has told you what intervention would be most effective.
   d. It promotes social work ethics.
   e. It incorporates client values and expectations.
4. All but which one of the following is a characteristic of a researchable question?

   a. It is relevant to practice  
   b. It supports your hypothesis  
   c. It is not something for which you already know the answer  
   d. It is specific  
   e. It is measurable

5. All but which one of the following is a EBP question type?

   a. Effectiveness  
   b. Research  
   c. Prevention  
   d. Assessment  
   e. Descriptive  
   f. Risk

6. When searching for evidence you should start with?

   a. Reviewing articles in professional journals  
   b. Reviewing meta analyses and systematic reviews  
   c. Ask colleagues about their experience  
   d. Programs that your organization provides  
   e. Books on social work practice

7. When analyzing the evidence to determine if it is the appropriate best evidence to determine if an intervention is effective, you should consider all but which one of the following:

   a. Statistical significance  
   b. Absolute risk reduction  
   c. Frequency of utilization  
   d. Number needed to treat  
   e. Number needed to harm
8. When analyzing a research study on a specific treatment intervention you find that they report the number needed to treat (NNT) to obtain one positive outcome. Based on the list below which NNT would demonstrate the most effective treatment intervention?

   a. 5  
   b. 12  
   c. 3  
   d. 2  
   e. 15

9. Which is the most common level of statistical significance used in social science research?

   a. .01  
   b. 10  
   c. 05  
   d. 25  
   e. 001

10. Based on your search finding, you determine the intervention that will have the best chance for success with your client is a combination of medication and cognitive behavioral therapy (CBT) however you are not trained in CBT. What would be your best course of action to serve your client?

    a. Provide individual therapy because you have an expertise in this modality and have had good experience with this type of problem in the past.  
    b. Refer the client for a medication evaluation and treat with the most effective medication.  
    c. Put the client on a waiting list and acquire training in CBT  
    d. Inform the client of your findings. Determine the best course of action with your client.

11. You have become certified to provide Dialectic Behavioral Therapy (DBT). This therapy has been found to be effective with adult females with self-harm behaviors. You receive a number of referrals to treat this population. To evaluate the effectiveness of your interventions you should track and record all but which of the following:

    a. Client satisfaction  
    b. How often the intervention is given  
    c. The number of times you have applied the intervention  
    d. Outcomes
12. All but which one of the following is a reason to collect data in practice?

a. It is important to make your own observations
b. Extrapolating from research to your own clients may still put them at risk
c. To demonstrate that you are providing more services than your colleagues
d. The data collection process may serve client preferences directly
e. Client input is important for determining successful outcomes

13. All but which of the following are elements of a researchable question?

a. Client type and problem
b. What you might do
c. Where you will provide the intervention
d. Alternative course of action
e. What you want to accomplish (goal)

14. From the list below identify the steps of EBP and put them in order by placing a number in the blank to indicate the order of the steps. (e.g. “1” would indicate the first step, “2” would indicate the second step, etc.) Leave options that are not steps of EBP blank.

---

Acquire research evidence
Ask a researchable question
Apply Social Work Ethics
Acquire consent to treat
Ask your client what the presenting problem is
Assess the outcome
Analyze the evidence
Analyze the diagnostic criteria
Apply the evidence to practice
---

15. Name one source of systematic reviews. ____________________
Please place the number (1 thru 4) that best represents your answer in the blank next to each statement. The numbers represent the following responses:

1 = Strongly Agree
2 = Agree
3 = Disagree
4 = Strongly Disagree

____ I know how to find appropriate research articles.
____ I have sufficient time to search for research articles.
____ Research articles are easy to find.
____ I understand research articles.
____ I feel confident in judging the quality of research articles.
____ I am able to identify the implications of research findings for my own practice.
____ I feel confident about integrating EBP into my practice knowledge.
____ My university supports EBP.
____ I have sufficient resources to integrate EBP into my practice knowledge.
____ My fellow faculty supports the use of EBP.
____ My department administration supports the use of EBP.
____ I am able to find research evidence relevant to my interests.
____ I am able to use the library to locate research evidence.
____ I am able to use the Internet to search for research evidence.
____ I am able to analyze research evidence.
____ I am able to apply research evidence to practice.
____ I utilize EBP on a regular basis in my practice
____ EBP is essential to the future of social work practice.
Appendix G

Instrument for Main Study
Evidence-Based Practice (EBP) Questionnaire
for Social Workers

Course Number: ________________________________

Age: __________ Gender: □ Male □ Female
Current Cumulative Grade Point Average in your M.S.W. program: __________

Previous Education: (For all that apply, check the box and fill in the blank)

☐ Bachelors Degree - Field or Discipline:

☐ Masters Degree - Field or Discipline:

☐ Doctorate - Field or Discipline

☐ Other – Please specify:

☐ I have read a book on EBP
☐ I have attended an EBP workshop (less than one day) How many: ______
☐ I have attended an EBP workshop (one day or more) How many: ______
☐ I have served as a tutor/facilitator/trainer in another EBP workshop
☐ I have completed one or more college courses in EBP (number of courses taken ___)
  What Level: ☐ Bachelor ☐ Masters ☐ Doctorate
☐ I have taken one or more college courses with EBP as a topic (number of courses taken ___) What Level: ☐ Bachelor ☐ Masters ☐ Doctorate

Check the box that best represents your response.

I would rate my knowledge of EBP as:
☐ None ☐ Novice ☐ Average ☐ Advanced ☐ Expert

Please circle the most appropriate answer for questions 1 through 13.

1. A couple presents with the complaint that the wife is experiencing symptoms of depression. She is having difficulty concentrating, feeling sad, has trouble making decisions and difficulty sleeping. Your assessment indicates that she meets the diagnostic criteria for depression and marital discourse does not appear to be the cause of the depression. The couple requests marital therapy to treat the depression. Based on a systematic review you should:
a. Provide marital treatment because it is found to be the most effective treatment for depression.
b. Provide individual therapy because it is found to be the most effective treatment for depression
c. Provide drug therapy because it is found to be the most effective treatment for depression
d. Explain to the client that marital therapy has not been found to be any more effective in treating depression than individual or drug therapy and decide with your client what course of action to take

2. A 16-year-old male has a history of intimidating others in school, initiating fights with others and has been convicted of purse snatching and breaking and entering. This is his first conviction. Your assessment indicates that he meets the diagnostic criteria for conduct disorder. Based on your assessment and the results of a systematic review you should?

a. Provide family therapy because it is found to be the most effective treatment for conduct disorders
b. Inform the client that no one treatment has been found to be more effective than another for the presenting problem and decide with your client what course of action to take
c. Provide Multisystemic Therapy because it is found to be the most effective treatment for conduct disorders
d. Provide Group therapy because it is found to be the most effective treatment for conduct disorders

3. All but which one of the following would be a valid reason for utilizing EBP in social work.

a. It provides a framework for self directed life long learning
b. It provides a common interdisciplinary language
c. A professor you respect has told you what intervention would be most effective.
d. It promotes social work ethics
e. It incorporates client values and expectations

4. All but which one of the following is a characteristic of a researchable question?

a. It is relevant to practice
b. It supports your hypothesis
c. It is not something for which you already know the answer
d. It is specific
e. It is measurable
5. All but which one of the following is a EBP question type?

a. Effectiveness
b. Research
c. Prevention
d. Assessment
e. Descriptive
f. Risk

6. When searching for evidence you should start with?

a. Reviewing articles in professional journals
b. Reviewing meta analyses and systematic reviews
c. Ask colleagues about their experience
d. Programs that your organization provides
e. Books on social work practice

7. When analyzing the evidence to determine if it is the appropriate best evidence to determine if an intervention is effective, you should consider all but which one of the following:

a. Statistical significance
b. Absolute risk reduction
c. Frequency of utilization
d. Number needed to treat
e. Number needed to harm

8. When analyzing a research study on a specific treatment intervention you find that they report the number needed to treat (NNT) to obtain one positive outcome. Based on the list below which NNT would demonstrate the most effective treatment intervention?

a. 5
b. 12
c. 3
d. 2
e. 15

9. Which is the most common level of statistical significance used in social science research?

a. .01
b. .10
c. .05
d. .25
e. .001
10. Based on your search finding, you determine the intervention that will have the best chance for success with your client is a combination of medication and cognitive behavioral therapy (CBT) however you are not trained in CBT. What would be your best course of action to serve your client?

a. Provide individual therapy because you have an expertise in this modality and have had good experience with this type of problem in the past.
b. Refer the client for a medication evaluation and treat with the most effective medication.
c. Put the client on a waiting list and acquire training in CBT
d. Inform the client of your findings. Determine the best course of action with your client.

11. You have become certified to provide Dialectic Behavioral Therapy (DBT). This therapy has been found to be effective with adult females with self-harm behaviors. You receive a number of referrals to treat this population. To evaluate the effectiveness of your interventions you should track and record all but which of the following:

a. Client satisfaction
b. How often the intervention is given
c. The time of day the intervention is given
d. Outcomes

12. All but which one of the following is a reason to collect data in practice?

a. It is important to make your own observations
b. Extrapolating from research to your own clients may still put them at risk
c. To demonstrate that you are providing more services than your colleagues
d. The data collection process may serve client preferences directly
e. Client input is important for determining successful outcomes

13. All but which of the following are elements of a researchable question?

a. Client type and problem
b. What you might do
c. Where you will provide the intervention
d. Alternative course of action
e. What you want to accomplish (goal)
14. From the list below identify the steps of EBP and put them in order by placing a number in the blank to indicate the order of the steps. (e.g. “1” would indicate the first step, “2” would indicate the second step, etc.) Leave options that are not steps of EBP blank.

- Acquire research evidence
- Ask a researchable question
- Apply Social Work Ethics
- Acquire consent to treat
- Ask your client what the presenting problem is
- Assess the outcome
- Analyze the evidence
- Analyze the diagnostic criteria
- Apply the evidence to practice

15. Name one source of systematic reviews.

Please place the number (1 thru 4) that best represents your answer in the blank next to each statement. The numbers represent the following responses:

1 = Strongly Agree
2 = Agree
3 = Disagree
4 = Strongly Disagree

- I know how to find appropriate research articles.
- I have sufficient time to search for research articles.
- Research articles are easy to find.
- I am able to understand research articles.
- I feel confident in judging the quality of research articles.
- I am able identify the implications of research findings for my own practice.
- I feel confident about integrating EBP into my practice knowledge.
- My school of social work supports EBP.
- I have sufficient resources to integrate EBP into my practice knowledge.
- My fellow students support the use of EBP.
- My professors support the use of EBP.
- I am able to find research evidence relevant to my practice interest.
- I am able to use the library to locate research evidence.
- I am able to use the Internet to search for research evidence.
- I am able to analyze research evidence.
- I am able to apply research evidence to practice.
- I will utilize EBP in my practice after I receive my M.S.W.
- EBP is essential to the future of social work practice.
Appendix H

Human Subjects Institutional Review Board
Letter of Approval
Date: January 13, 2009

To: Frederick MacDonald, Principal Investigator
    Kellie Cody, Student Investigator for dissertation

From: Amy Naugle, Ph.D., Chair

Re: HSIRB Project Number: 08-12-19

This letter will serve as confirmation that your research project entitled "Measuring MSW Students' Knowledge of Evidence-based Practice" has been approved under the exempt category of review by the Human Subjects Institutional Review Board. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: January 13, 2010