



**TEACHING THE LOGIC, PROCESS AND SKILLS OF EVIDENCE-  
BASED PRACTICE**

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**Presented at:  
NACSW Convention 2014  
November, 2014  
Annapolis, Maryland**

## Teaching the Logic, Process, and Skills of Evidence-Based-Practice

### Abstract

*This paper describes an approach to teaching the logic, process, and skills of evidence-based practice to students entering a Master of Science in Social Work program with advanced standing. Using the steps of evidence-based-practice as a series of assignments, students learn the logic and process of evidence-based practice as if working with a live client. A movie is used to provide students with a rich array of potential clients and problems that they apply the evidence-based-practice model to.*

## Teaching the Logic, Process, and Skills of Evidence-Based-Practice

Shlonsky and Stern (2007) recommended a set of assignments whereby students progress through each of the steps in the evidence-based-practice (EBP) process. This set of assignments, as described by Shlonsky and Stern (2007), culminates in a final paper that demonstrates competency in each of the EBP steps (i.e., formulating a search question, searching for literature, critically appraising the literature, choosing an intervention, evaluating the intervention). This paper describes a modified version of that series of assignments currently used in a Master of Science in Social Work (MSSW) program to introduce advanced standing MSSW students to the logic and skills associated with the EBP process model.

### The Evidence-Based Practice Process Model

The EBP process model proposes that evidence-based practice is a dynamic process consisting of several steps (Gambrill, 1999, 2006; Regehr, Stern, & Shlonsky, 2007; Sackett, Richardson, Rosenberg, & Haynes, 1997; Sackett, Straus, Richardson, Rosenberg, & Haynes, 2001; Shlonsky & Gibbs, 2004; Straus, Richardson, Glasziou, & Haynes, 2005). The names and descriptions of steps may vary slightly across authors but typically include: posing an answerable question; searching for the best available evidence to answer the question; critically appraising that evidence; integrating the critical appraisal into a client-friendly treatment plan; and evaluating the effectiveness with which the previous steps were carried out (Straus, et al., 2005).

The steps, as taught in the course, are as follows:

1. Defining the client type and presenting problem (issue, concern)
2. Assessment: biopsychosocial assessment, community assessment, or any other type of assessment
3. Writing a COPES/EBP search question

4. Conducting an evidence search
5. Appraisal of literature
6. Intervention/treatment planning
7. Evaluation of intervention

To give faculty and students a common ground for discussing application of the EBP model to a social work practice situation, a movie is used. For the past two years, the movie *Crash* was used although any movie relevant to social work practice will do. During the first or second class session, students view the movie with the knowledge that they will be choosing a character from the movie to serve as a client/client system. Students may embellish the information presented in the movie in order to have sufficient information for an interesting and complete social work case study. Students must also provide sufficient data in the description of the client type and problem to support assessment conclusions and practice decisions.

#### *Defining the Client Type and Problem*

Gibbs' (2003) first element of a well-built client-oriented practical evidence search (COPES) question calls for a statement of the client type and problem. This assignment, therefore, begins the EBP process with a definition of the client type and problem. Though the evidence-based-medicine model, from which the social work EBP model is derived, is designed for clinical practice by individual medical practitioners working with individual clients (Sackett, et al., 1997; Sackett, Rosenberg, Gray, Haynes, & Richardson, 1996; Haynes, & Richardson, 1996; Sackett, et al., 2001; Straus, et al., 2005) its applicability to social work agency, community, and policy practice is promoted by numerous social work scholars (Bellamy, Bledsoe, Mullen, Fang, & Manuel, 2008; Mullen, Fang, & Manuel, 2008; Collins & Hoffman, 2006; Gambrill, 2003, 2006; Regehr, et al., 2007; Zlotnik & Solt, 2008). The client, therefore,

can be a person, a family, a community, an agency or any other system with which a social worker seeks to intervene.

### *Assessment*

Gambrill (1999) listed individualized assessment and attention to the values and preferences of the client as hallmarks of EBP. While the term biopsychosocial assessment is used to describe a micro-level assessment, agency or community assessment, can be used for macro practice. In micro practice, a complete biopsychosocial assessment helps the practitioner better understand the clients' values, resources, preferences, needs, and nature of the presenting problem. Agency and/or community assessment is concerned with detailing the resources (assets), needs, goals, stakeholders, and other social and political variables interacting with the particular agency or community. The product of a good assessment should include specific terminology that will help formulate a search question. In clinical mental health practice, this terminology will be very similar to language used in the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition, Text Revision (American Psychiatric Association., 2000; Thyer, 2003).

In this particular course, students can choose to work at any level of practice. Historically, most students choose to work with an individual client at a micro-level. This particular movie provides a variety of micro-level and macro-level options. The African American female who is sexually assaulted by a police officer and the two African American males who hijack cars are frequent client choices. There are usually some, however, who choose the Los Angeles community or the Los Angeles Police Department as their client. Others target social and economic policies that lead to violent crime (e.g., carjacking or shooting).

### *Writing a COPES/EBP Search Question*

The next phase in the process model of evidence-based practice is the formulation of a COPES/EBP question. Students are encouraged to view this question as a practice question as it is designed to identify evidence-supported practices. The acronym COPES was coined by Gibbs (2003) and stands for Client Oriented Practical Evidence Search. According to Gibbs, four elements of a well-built COPES question include a definition of the client type and problem; an intervention; an alternative intervention; and an intended outcome. Gibbs also described several different types of COPES questions. These types include treatment effectiveness questions, prevention questions, risk/prognosis questions, assessment questions, and description questions. Since Gibbs converted material from an evidence-based medicine book (i.e., Sackett, et al., 2001), the focus of these question types is inherently clinical. Some modification of the four elements of a well-built COPES question is required for non-clinical social work situations.

Because COPES questions are designed specifically to guide literature searches, students learn to write the four elements of a well-constructed COPES question (Gibbs, 2003). A COPES question using the woman in the movie *Crash* who was sexually assaulted by the police might have the following elements:

- Client Type and Problem: African American Female with anxiety and depression following a sexual assault
- Proposed Intervention: Crisis Counseling
- Alternative Intervention: Eye Movement Desensitization and Reprocessing
- Outcome: Decreased anxiety and depression

Put into question format, the COPES question might read as follows: If an African American female who is sexually assaulted receives eye movement desensitization and reprocessing (EMDR) or crisis counseling, which approach will effectively reduce anxiety and depression? Though well-built COPES questions are often awkward and poor in grammar, they help students learn the importance of thinking through the specifics of the client type and problem, the intervention, and the desired outcome.

### *Searching for Literature*

Proper construction of an EBP/COPES question greatly aids searching for literature. The four elements of a well-built COPES question translate into key words for the search. Gibbs (2003) developed methodologically oriented locators for the evidence search (MOLES) that allow the searcher to limit the type of literature searched for to specific methodologies. Some modern search engines and databases such as PsycINFO, as provided by EBSCOhost, have built in features that have the same function as MOLES (i.e., to allow the searcher to limit a search to specific methodologies). Built in methodological filters save time and possibly eliminate the need for entering MOLES. Use of MOLES, however, provides a methodological filter that can be used with a variety of databases (Shlonsky & Gibbs, 2004). Students, in this course, learn to use MOLES and the built in filters in modern database search engines.

The search-planning sheet developed by Gibbs (2003) is a useful tool for planning a search for literature. This tool is available for download on the Evidence-Based Practice for the Helping Professions website (<http://evidence.brookscole.com/search.html>). The planning sheet organizes key words for the search in columns corresponding to the four elements of a well-built COPES question. Rows on the search-planning sheet allow for input of primary search terms

and for synonyms and controlled language. Once completed, it is easy to simply cut and paste terms from the search-planning sheet into a search data field.

Using a method similar to that proposed by Gibbs (2003) offers several advantages. First, a prescribed methodology drives this approach keeping the search within the scope of the original EBP question. This helps to avoid fishing expeditions. Second, using this approach increases the probability of locating high quality relevant research literature. Third, this method greatly decreases the number of irrelevant articles the searcher must peruse. Fourth, use of this method promotes transparency by allowing others to view the question and keywords used in the search. Fifth, this method allows others to replicate the search.

One potential drawback of using this method of searching is that it is so specific the search may result in few or no hits. Typically, this occurs when search terms are too specific or when too many search terms are used. For example, since very few studies are limited to populations of color/specific ethnicities, using such terms in literature searches will frequently produce the “No results were found” message. Usually, such a search can be broadened a little bit at a time by deleting certain search terms. Possibly, though, the EBP question is asking about a topic that has very little or no research base. Social workers work with populations of people and try to solve problems that simply have no research base. When this happens, terms can be deleted or methodology filters can be eliminated to broaden the search.

Many of the key challenges facing those who teach and/or practice the EBP model revolve around deciding what type of information is best for particular practice decisions. Because of their strong internal validity, many people consider randomized controlled trials (RCT) the gold standard of evidence for intervention effectiveness questions (Zlotnik & Galambos, 2004). Zlotnik and Galambos (2004) point out, however, that RCTs have limited

generalizability in real world practice. There is no guarantee that the social work client bears any resemblance to the RCT study population. Additionally, RCTs do not exist for many social work interventions because ethical and practical complications often prohibit, or make extremely difficult, this methodology (e.g., randomization into treatment and control groups prior to intervention). Some (e.g., Gray & McDonald, 2006) consider strict adherence to positivist research to be too limiting.

Use of evidence hierarchies, with different hierarchies for different types of EBP questions, are one solution to the problem of matching best available evidence with the client type and problem (Gibbs, 2003; Rubin, 2008). Students learn, therefore, to work down the hierarchies for the different question types to find the best quality evidence available. For treatment effectiveness decisions, Rubin (2008) placed systematic reviews and meta-analyses at the top of the hierarchy because these types of studies synthesize results from multiple RCT's. Additionally, Rubin ranks multi-site trials higher than single site RCTs. Working down the Rubin evidentiary hierarchy for treatment effectiveness questions, quasi-experimental designs, single system designs, non-experimental quantitative group designs, and qualitative studies follow RCTs in that order. Given the absence, in the research literature, of studies at one level in the hierarchy, students must learn to look for studies a level lower. Many times correlational studies exist, for example, that can provide the best available evidence that an intervention has a good probability of success.

### *Critically Appraising Existing Literature*

Once the search for literature is complete, retrieval and appraisal of that literature follows. Fortunately, at least for those in academic settings, full text articles for recent publications are available and easily downloaded. For social workers in non-academic settings a

few information services are now available, to the public, via the Internet (e.g., The Cochrane Collaboration, The Campbell Collaboration, Pubmed). Gibbs (2003) developed several rating forms that can be used for evaluating studies with differing methodologies. The Quality of Study Rating Form (QSRF), for example, includes eighteen criteria to evaluate study quality for experiments and quasi-experiments. The sum of the criteria scores result in a Total Quality Points index. In addition, this form includes calculation instructions and blanks for indices of treatment effect size. Gibbs (1989) found that such forms can be used by students with a reasonable amount of reliability. According to Gibbs (2003) the QSRF “is intended to provide a quick, systematic, and reliable guide for practitioners needing to synthesize evaluation research” (p. 57). Students, using the QSRF, can quickly learn to identify a few key methodological features of an experimental or quasi-experimental study that enhance the internal validity of the study. For non-experimental studies, other rating forms, emphasizing different methodological features, exist (e.g., the Survey Rating Form and the Qualitative Study Quality form).

While the use of such forms is encouraged in the class, students are free to choose other approaches to the appraisal of studies. Some students prefer to use a logical analysis approach such as that described by (Paul & Elder, 2001). Others choose to answer the questions, related to the type of research being appraised, posed by (Rubin, 2008). Others take more of a narrative approach highlighting the methodological strengths and weaknesses of the study or group of studies. Students judge the overall quality of the evidence and decide if the evidence supports or fails to support a particular intervention.

### *Translating Evidence into Practice*

Once the critical appraisal is complete, the task becomes translating the results into something that is useful for practice. Ideally, students would locate manualized treatments or

practice guidelines for the particular problem they are trying to solve or objective they are trying to accomplish (Rosen & Proctor, 2003c). Manualized interventions and practice guidelines for social work are still, however, in their infancy or non-existent for many social work practice areas (Howard, Allen, & Ruffolo, 2007 2007; Kirk, 2003; Proctor & Rosen, 2008; Reinhardt, 2010; Rosen & Proctor, 2003a, 2003b, 2003c; Thyer, 2003). Instead, students are required to take the interventions supported by research evidence and develop an intervention plan that includes specific, measurable, attainable, realistic, and timely (SMART) objectives and behavioral tasks designed to accomplish the objectives.

### *Intervention Evaluation*

The overall purpose of evaluation is to inform further practice decisions with an overall goal of improving the effectiveness of interventions (Gibbs, 2003; Proctor, 2003, 2007; Proctor & Rosen, 2008; Rubin, 2008). As the process model indicates, a recursive feedback loop exists with evaluation findings feeding back on to model. Evaluation results may suggest that an intervention worked wonderfully. Alternatively, and more likely, evaluation results may indicate a need for improvement. Since errors can, and likely will, occur at any of the stages of the EBP process, practitioners must use their expertise in interpretation of evaluation findings to make decisions regarding changes that can potentially improve results.

Though evaluation can take many shapes and forms, the EBP model emphasizes the importance of evaluating the effectiveness of the intervention (Proctor & Rosen, 2008; Rubin, 2008; Sackett, et al., 1997 2001; Straus, et al., 2005). In this course, therefore, students are required to demonstrate how they would use an appropriate research design to evaluate the effectiveness of the intervention. Since single system designs lend themselves nicely to intervention evaluation (Rubin, 2008), students are encouraged to use such designs. In the

written paper, students are required to detail their evaluation methodology. Because students do not actually implement the interventions they identify, they make up data or use a pre-existing data set to demonstrate evaluation competency.

### Conclusion

This paper discussed a strategy for teaching evidence-based practice to students entering, with advanced standing, a master's of science degree program in social work. The assignment challenges students to grapple with the logic, process, and skills of EBP at the beginning of their graduate-level social work education. Students learn that EBP is a dynamic process that emphasizes the importance of using evidence-supported interventions while staying true to the person-in-environment perspective. Using the EBP process model, students learn to define a client problem, write a client oriented practical evidence search (COPES) question, search for evidence-supported interventions using key terms extracted from the COPES question, critically appraise research studies, use critically appraised studies to develop intervention plans, and evaluate the effectiveness of interventions.

By learning the logic, process, and skills associated with the EBP model, students learn to be disciplined critical thinkers who can keep up with the demands of a rapidly changing world. Instead of teaching a prescribed and static body of knowledge to students, using an expert-to-passive recipient of knowledge model, this approach provides learners with a set of tools they can use to keep up with constantly changing knowledge.

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