The Importance of Critical Thinking in Evidenced-Based Practice

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One of the hallmarks of EBP is its focus on critical thinking. Astleitner (2002) defines critical thinking as

> a higher-order thinking skill which mainly consists of evaluating arguments. It is a purposeful, self-regulatory judgment which results in interpretation, analysis, evaluation, and inference, as well as explanations of the evidential, conceptual, methodological, or contextual considerations upon which the judgment is based (p. 53).

In describing what she calls "ways of knowing," Gambrill (1999), suggests, "Different ways of knowing differ in the extent to which they highlight uncertainty and are designed to weed out biases and distortions that may influence assumptions" (p. 341).

This chapter presents several alternative ways of knowing that should help the reader understand critical arguments about the functions and benefits of various approaches to clinical research. This discussion should help in determining how much we, as helping professionals, can depend on the findings of a given research study. As part of the evaluation of any study, the consumer of research should know the researcher's philosophy of science. Throughout this chapter, the opposing points of view of a number of authors are provided, as they discuss the value and limitations of various ways of gathering and viewing knowledge.

Many helping professionals believe that much of what we do is not open to the scientific method, and argue that our work isn't quantifiable because of its complexity. Some authors believe that overly controlling

research methodologies severely limit inquiry and are responsible for the lack of practice research, while other authors argue that loose research designs have led the helping professions into beliefs that are better characterized as "pseudoscience" and are responsible for the lack of solid empirical research in the field. In this chapter, a discussion of several well-accepted beliefs in the helping professions will be challenged so that the use of critical thinking might be better understood. A progression of logical questions about a research article will also be offered to show the practical use of critical thinking in evaluating best evidence. I am indebted to Eileen Gambrill (1999) in this chapter for her work on critical thinking.

Ways of Knowing

THEORY BUILDING THROUGH OBSERVATION

The use of observation as an approach to gathering knowledge, also called "logical positivism," suggests that everything we need to know about a research issue can be learned through observation. It is a theory-free approach because observation precedes theory. One way logical positivism is applied in psychotherapy is the belief that, by working with a client over time, we can understand the client's behavior and then construct treatment interventions as our theory of the client evolves. Although this approach to problem solving sometimes results in breakthroughs of a major order (Freud's work, for example), it has many problems, not the least of which is the questionable objectivity of the observer. The inductive approach it utilizes can be highly subjective, illogical, and inaccurate (Freud's work, again, might be a good example).

As an indication of the bias that often develops when using logical positivism, it has been a firm belief in the helping professions that child abuse does long-lasting harm to people, and particularly to children. But what if this assumption is false and most people are able to cope with abusive behavior without professional help and without long-lasting harm? Rind and Tromovitch (1997) conducted a meta-analysis of the impact of child sexual abuse (CSA) on the emotional functioning of adult victims and concluded that the impact was limited. They write:

> Our goal in the current study was to examine whether, in the population of persons with a history of CSA, this experience causes pervasive, intense psychological harm for both genders. Most previous literature reviews have favored this viewpoint. However, their conclusions have generally been based on clinical and legal samples, which are not representative of the general population. To address this viewpoint, we examined studies that used national probability samples, because these samples provide the best available

estimate of population characteristics. Our review does not support the prevailing viewpoint. The self-reported effects data imply that only a small proportion of persons with CSA experiences are permanently harmed and that a substantially greater proportion of females than males perceive harm from these experiences. Results from psychological adjustment measures imply that, although CSA is related to poorer adjustment in the general population, the magnitude of this relation is small. Further, data on confounding variables imply that this small relation cannot safely be assumed to reflect causal effects of the CSA. (p. 253)

If the authors are correct, and their work has resulted in intense criticism from professionals, perhaps the assumption that early life traumas inevitably lead to emotional difficulties is incorrect. Much of the reason we believe that a relationship between abuse and emotional difficulty exists comes from Freud's initial work, which was based entirely on his observation of abused clients. Had he met with abused clients who were functioning well in spite of their abuse, he might have come to very different conclusions. Observation is a very intuitive approach, and although it may provide creative insights, it may also result in seriously flawed information.

POSTMODERNISM

Postmodernism, also know as relativism and postpositivism, believes that all forms of inquiry are equally valid. In showing the subjective nature of the relativist approach to inquiry, Gellner (1992) writes, "Those who propound it or defend it against its critics, continue, whenever facing any serious issue in which their real interests are engaged, to act on the non-relativistic assumption that one particular vision is cognitively much more effective than others" (p. 70). However, as a reaction against the tightly controlled methodologies of the empirical approach, Tyson (1992) believes that a significant occurrence in the applied social sciences is the "shift away from an outdated, unwarranted and overly restrictive approach to scientific social research which has long been unsatisfying to practitioners" (p. 541).

Gambrill (1999), however, sees a contradiction in the way many practitioners live their lives and the way the use of postmodernism affects their professional practice. She compares what social workers want from their personal physicians—an evidence- and knowledge-guided approach to their medical problems that is based on best evidence from controlled studies—with what they feel comfortable offering their own clients—treatment based on intuition, practice wisdom, folklore, mythology, and an occasionally badly done piece of research that validates their belief system.

In another work, I (Glicken, 2003) describe postmodernism as a way of thinking that concerns itself with social problems that have developed as a result of believing that there are rational explanations for most issues. Postmodernism comes from a core belief that it is this attempt to be rational that often causes us to passively accept gender bias, discrimination, inequitable distribution of wealth, war, poverty, conflicts among groups of people, and a range of other problems confronting us as a people. In many ways, postmodernism is a reaction against a world that still cannot control its more primitive instincts and stems from the disillusionment of many people after the Vietnam War. Postmodernism suggests that many current explanations of human behavior are incorrect and that the goal of all intellectual inquiry is to seek alternative explanations of people and events without the methodological limitations of empiricism. Those alternative explanations might include the importance of spirituality, the significance of intuition, and the relevance of non-Western approaches to health. For the postmodernist researcher, the purpose of research is to explore the world in a way that permits maximum flexibility in the use of research methodologies. In a sense, postmodernist researchers are atheoretical and value the flexibility of using a range of research methodologies to seek alternative explanations of events. They want little to do with empiricism because they believe it limits more creative and intuitive approaches while discounting the common experiences, observations, and insights we all have, which may not be supported by data or objective evaluations but which may, nonetheless, be true and which add to our knowledge base.

Gambrill (1999) worries that this freewheeling approach to research hides a more fundamental problem. Claims made by therapists that cannot be supported by hard evidence lead to claims supported by weak and limited research efforts that, over time, create a body of knowledge with a transparent lack of evidence. That body of knowledge is what Gambrill calls a psuedoscience. She believes that this weak body of knowledge has become so prevalent in the literature of social work because it looks like science, although it lacks its structure, methodology, and controls. Tanguay (2002) supports this point of view and writes,

> No matter how reassuring, no matter how exciting the finding, no matter what hope it holds out to clients, the results of anecdotal studies, single subject trials, nonrandomized designs, and noncontrolled investigations must be looked on with skepticism. Such studies may be helpful as pilot work but we are deceiving ourselves and our clients if we act on the results until they are proven. This applies to studies with negative as well as positive results. (p. 1323)

In two opposing articles about the use of the scientific method in psychiatry, Shea (2000) and McLaren (2000) express different thoughts about how

well the scientific method can be used in a discipline focusing on the human condition. Shea believes that psychiatry is badly served by the scientific method and writes, "Any applications of that method to such essential human affairs as love, hate, religion, and the unconscious are bound to fail" (p. 227). In suggesting reasons for the lack of relevance of the scientific method to psychiatry, Shea argues that the scientific method assumes that everything is quantifiable and can be made rational, but that this is seldom the case in the helping professions. Many behaviors we deal with defy reason and are certainly not quantifiable. People often think that science is about the use of statistics, but, according to Shea, statistics "is for pedestrian science," (p. 228) because it doesn't suggest bold new theories but rather breaks information into minutiae. On the other hand, McLaren believes that Shea's arguments are spurious and that Shea has created a straw man out of the issue, which is meant to appeal to emotion rather than to reason. McLaren (2000) writes, "Science is mainly about bold and elegant theories which make sense of chaos, and the truly great advances in science have always vaulted far beyond the limited reach of statistics" (p. 374). McLaren goes on to say that in Shea's attempt to vilify the scientific method in psychiatry, he makes the mistake of suggesting that there is only one scientific method when, in reality, "there are lots of scientific methods, some of which are applicable across a broad range of fields and which, collectively, are directed at stripping prejudice and bias from our exploratory efforts" (p. 373).

THE SCIENTIFIC METHOD

The scientific method, also known as critical rationalism and positivism, is a way of "thinking about and investigating the accuracy of assumptions about the world. It is a process for solving problems in which we learn from our mistakes" (Gambrill, 1999, p. 342). The scientific method requires statements, findings, and conclusions to be tested so they can be accepted or rejected. In describing the scientific method, Munz (1985) writes, "Knowledge is not acquired by the pursuit of a 'correct' method; rather it is what is left standing when criticism has been exhausted" (p. 72). One of the key elements of the scientific approach is a willingness to critically evaluate and test knowledge and theories. By doing so, we are able to eliminate many of our mistakes and, in the process, advance knowledge.

Wuthnow (2003) says that the scientific method "involves thinking of ways in which our cherished assumptions about the world may prove to be wrong" (p. B10). He further notes that science expects "candidly disclosing what we have done so others can track our mistakes" (p. B10). In a statement not everyone will agree is representative of the scientific method, but one of importance to research on best evidence, Wuthnow goes on to say,

But the scientific method can equally pertain to studies involving qualitative information drawn from participant observation, interviews, and archival materials. Carefully sifting through letters and diaries in an archive, or through artifacts at an archaeological dig, is ever as much science as computing regression equations or life-expectancy tables. If science is understood in this broader way, then we can identify more clearly some of the challenges in which it may usefully be employed. (p. B10)

Tanguay (2002), however, calls for a more rigorous methodology and believes that we must be willing to maintain a "rigorous skepticism" concerning our personal beliefs about the effectiveness of our treatments and our cherished theories. "Professional ethics should preclude us waffling on the issues of scientific merit. A scientifically inadequate study will lead to unwarranted hope and lost incentives" (p. 1323). Shea (2000) goes even further and wonders if it's possible for the helping professions to use the scientific method at all. Shea writes, "No amount of wishful thinking about the scientific method is going to alter the fact that, in much of psychiatry, an indispensable element in the therapeutic process is what goes on between the therapist and the patient—the knowledge, understanding, rapport, trust and confidence that builds up over time" (p. 227). According to Shea, this subjective component of the therapeutic relationship is not open to measurement, and even if it were, the results would certainly be questionable. "Some feelings," Shea writes, "cannot be put into words that can communicate the exact nature of the experience let alone into words that can be adopted to either scientific use or logical analysis" (p. 227).

JUSTIFICATION AND FALSIFICATION

In approaches that use justification, researchers gather support to prove or justify their theories or hypotheses. In approaches that use falsification, researchers try to discover errors in their hypotheses or theories. The reader can readily see that falsification approaches require a much more thorough analysis than justification approaches because it takes a more concentrated effort to disprove something than to prove it. Proving a hypothesis or theory is weighted in the direction of the methodological information the researcher is willing to share with us and is often upheld by the authority the researcher derives from having done the research. Falsification requires no authority other than the logic of the critical analysis used to evaluate a researcher's methodology.

An example of justification and falsification can be found in a famous article written by Norman Cousins in the *New England Journal of Medicine* (1976). Some years ago, the well-known author was hospitalized with what was thought to be severe arthritis. In his article, Cousins contended that hospitals were bad for one's health because hospital personnel were

often unsupportive, treatments tended to be uncreative, and focusing on illness rather than wellness discouraged patients from getting better.

Failing to improve over the course of many days, Cousins convinced his doctor to release him to a hotel room where friends entertained him, many of whom were famous comedians. Cousins also watched comedies because, he reasoned, laughter increased oxygen flow, which is related to better health. Gourmet meals were served on the assumption that good food improved the body's ability to heal itself. His doctor continued to see him, but large doses of aspirin, the common treatment for arthritis when the article was written, were discontinued and megadoses of vitamin C were substituted. Cousins believed that vitamin C, which was thought to be a curative by such well-known advocates as Nobel Prize–winning physicist Linus Pauling, would help in his recovery.

As a result of these alternative treatments, Cousins reported that his medical condition improved significantly. In the years 1976 and 1977, the *New England Journal of Medicine* received more than 3,000 letters from doctors supporting Cousin's claim that hospitals were terrible places for sick people and that we should avoid them if possible. As I noted in a previous work (Glicken, 2003), no one asked, until much later, whether Cousins would have experienced a spontaneous remission had he stayed in the hospital. Nor did anyone look at his past behavior (Cousins had a prior medical problem that made him deeply cynical about the medical establishment). Finally, no one sought to consider the validity of mega–vitamin C therapy (it has since been rejected and people now worry that large doses of vitamin C may cause kidney damage). The bias against doctors, hospitals, and the treatment of illness is so strong in American society, even among many doctors, that personal convictions caused many health care professionals to accept Cousins' findings without adequate supportive data.

To be sure, good came from the article because many people in the medical profession began to realize that hospitals needed to be more humane. Changes were made in food service, visiting hours were relaxed, and consideration of the wishes of the patient regarding treatment was improved. As a piece of research, however, the article was meant to appeal to our emotions and cannot be considered scientific. And, more to the point, had Cousins used falsification and given us the many reasons his experiences were idiosyncratic to him and thus should not be generalized to others, the material would have been more meaningful and truthful. However, this is a good example of justification used by a figure of authority to create the illusion of good science.

Mythologized Knowledge

Nickerson (1986) believes that knowledge serves to decrease uncertainty and that to make it usable to practitioners, it has to survive tests of its credibility that, in addition to evidence for the purpose of treating client

problems, also keep us from making serious mistakes in our practice. One of the fundamental problems in the helping professions is the acceptance of knowledge that is not well-documented and has become mythologized through long acceptance without rigorous evaluation or debate. Gambrill (1999) points out the following characteristics of mythologized knowledge and the ways in which champions of mythologized knowledge maintain an incorrect and even harmful belief system:

1. They discourage scientific examination of claims, arguments, and beliefs.

2. They claim to be scientific but are not.

3. They rely on anecdotal evidence.

4. They are free of skepticism or discourage opposing points of view.

5. They confuse being open with being uncritical.

6. They fail to use falsification as a way of understanding information.

7. They use imprecise language.

8. They rely on appeals to faith.

9. They produce information that is not testable.

In the realm of the unscientific, here are a few mythologized beliefs we often see in the clinical literature without justifiable support:

1. **Belief:** A trained helping professional who has gone through a professional program and who is licensed to practice provides more effective help than an untrained and unlicensed professional. **Reality:** As Dawes (1994) reports, there is no relationship between training, licensure, and experience. Empathic nonprofessionals often provide more effective help than trained professionals (Gambrill, 1999). Consequently, a study using trained and licensed professionals to prove the effectiveness of any form of treatment would be remiss if it didn't compare professional help with nonprofessional help. Consumers of research need to know that other forms of help may be effective and that alternative approaches, such as self-help groups or informal therapy offered by indigenous helpers, may work as well—or better—than therapy provided by trained professionals. Using only trained people in a study limits the amount of information we can provide to consumers of research and may suggest unwarranted findings that confuse readers.

2. **Belief:** The longer a client is in therapy, the more likely important life questions will be uncovered that lead to enhanced social functioning. **Reality:** There is no relationship between length of treatment and better social functioning. In fact, Seligman (1995) found that clients with 6 months of therapy were doing as well, on self-reports, as clients with 2 years of

therapy. This belief is also used to suggest that longer therapy is more in-depth, but actually there is no evidence that this is true or that in-depth therapy is more effective than more superficial forms of therapy. Throughout this book, the reader will find evidence that, in many cases, short-term cognitive-behavioral therapies are more effective than therapies using insight over a longer period of time.

   3. **Belief:** Early forms of trauma inevitably lead to problems later in life. This is one of the foundations of modern psychotherapy and it may be true of some people, but is it true of everyone? **Reality:** Research on resilience in traumatized children and adults suggests that three commonly held beliefs about human development may be incorrect: (a) that there are predictable stages of development that apply to all of us; (b) that childhood trauma inevitably leads to adult malfunctioning (Benard, 1994; Garmezy, 1994); and (c) that there are social and economic conditions, personal relationships, and institutional problems that are so problematic that they inevitably lead to problems in the social and emotional functioning of children, adults, families, and communities (Rutter, 1994).

   Perhaps the best-known study of resilience in children as they grow into adulthood is the longitudinal research begun in 1955 by Werner and Smith (1982, 1992). In their initial report, Werner and Smith (1982) found that one out of every three children who were evaluated by several measures of early life functioning to be at significant risk for adolescent problems, actually developed into socially and emotionally well-functioning young adults by age 18. In their follow-up study, Werner and Smith (1992) report that two out of three of the remaining two thirds of children at risk had turned into caring and healthy adults by age 32. One of their primary theories was that people have "self-righting" capabilities, or what we would now call resilience. From their 30-year study, the authors concluded a significant factor for many children is the existence of a consistent and caring relationship with at least one adult. This adult (sometimes it was a peer) does not need to be a family member or to be physically present all of the time but in many cases is a teacher, a therapist, a relative, a minister, or a family friend. These relationships give the child a sense of protection and help develop the child's self-righting capacities. Werner and Smith believe that it is always possible to move from a lack of achievement and a feeling of hopelessness to a sense of achievement and fulfillment.

   This finding is supported by similar findings of serious antisocial behavior in children. In summarizing the research on youth violence, the surgeon general (Satcher, 2001) reports, "Most highly aggressive children or children with behavioral disorders do not become violent offenders" (p. 9). Similarly, the surgeon general reports that most youth violence ends with the transition to adulthood. If people were indefinitely affected by childhood traumas, these early life behaviors would suggest that violence in youth would continue into adulthood. The report further suggests

that the reasons for change in violent children relate to treatment programs, maturation, and biosocial factors (self-righting tendencies or, as it has more recently been termed, resilience) that influence the lives of many of the most violent youthful offenders. This and other research suggests that people *do* change, often on their own, and that learning from prior experience appears to be an important reason for change.

A person's positive view of life can have a significant impact on his or her physical and emotional health, a belief supported by a longitudinal study of a religious order of women in the Midwest (Danner, Snowdon, & Friesen, 2001). Longitudinal studies of the many aspects of life span and illness among this population suggest that the more positive and affirming the personal statements written when applicants were in their late teens and early twenties, the longer the life span, sometimes as long as 10 years beyond the mean length of life for the religious order and up to 20 years or more longer than the general population. Many of the women in the sample lived well into their nineties, and beyond. In a sample of 650, 6 members of the order were older than 100. Although some of the sample suffered serious physical problems, the numbers were much smaller than in the general population and the age of onset was usually later in life. Even though some of the members of the order had experienced severe childhood traumas, their life span and their level of health suggests that resilient people can overcome dysfunctional childhood experiences and live productive, successful, and fulfilling lives.

4. **Belief:** The therapeutic relationship is the key to successful psychotherapy and counseling. **Reality:** Noting the importance of the concept of the relationship in the professional literature, Gelso and Hayes (1998) wonder if we have a clear understanding of what is meant by the worker-client relationship, and write, "Because the therapy relationship has been given such a central place in our field for such a long period of time, one might expect that many definitions of the relationship have been put forth. In fact, there has been little definitional work" (p. 5).

In an attempt to determine the most effective approaches to treatment, Chambless and Ollendick (2001) reviewed the effectiveness of more than 75 approaches to therapy. The authors found little evidence that one approach worked better than another, although, in arguing for a more rational approach to treatment, they did find treatment protocols that seemed more effective with certain types of problems, but not with all clients, and not because of the quality of the therapeutic relationship. Chapter 7 considers issues related to the client-worker alliance in much more detail, but the reality is that helping professionals have limited evidence that the relationship is the key to client improvement even though many of us believe this to be the case, and have had experiences with our clients that lead us to believe the quality of the relationship is the key to positive client change.

Understanding the Logical
Progressions in Research Ideas

One of my excellent students was having problems with an article on perpetrators of family violence. The article was a postmodernist observation of men who were abusive and their relationships with their wives. The researcher in the article sat in a courthouse waiting room and observed couples before the perpetrator was called into court for a hearing involving his spousal abuse. The researcher had a protocol to guide the observations that specified areas of behavior to observe and evaluate that had been developed from several research articles that discussed the behavior of perpetrators with their spouses in public places. The protocol, although untested and neither valid nor reliable, was the guide the researcher used to look for certain behaviors associated with abusive behavior. The researcher watched 34 couples over a 2-month period of time and spent an average of 20 minutes observing each couple. Most of the couples were non-Caucasian. The researcher concluded that the men were domineering, threatening, and exhibited potential for violence in the courthouse waiting room. Only two couples held hands or looked affectionate with one another.

My student wanted to use this article as the cornerstone of her study, which tried to predict the potential for violence in abusing men prior to supervised visitations with spouses and children living independently in shelters, certainly an important and worthwhile issue to study. We spoke about the research article the student wanted to use.

Instructor (I):   This study makes me awfully uncomfortable.

Student (S):   Why?

I: Let's look at the study critically. What did you think were the parts of the study worth using?

S: It's relevant to my research.

I: That's true, but does the methodology warrant your using the findings?

S: I wondered about the lack of Caucasian subjects. About sixty percent of the male perpetrators in California are Caucasian. This study only had 4 Caucasian subjects, way less than the usual number I'd see in my study.

I: Good point. Why would the researcher make such an obvious mistake?

S: Maybe she doesn't like certain racial groups.

I: Maybe.

S: Maybe she didn't have time to draw a better sample. But that doesn't make sense, does it?

I: No, it doesn't. Anything else?

S: I had some problems with the protocol she used. It hardly includes the possibility of any positive behaviors. She was just looking for potential for violence. I think people waiting to go to a court hearing are pretty uptight. I'd guess most of us would look upset.

I: Me, too. Anything else?

S: She doesn't say a word about how she selected her couples or what some of the problems might be with her research. I've noticed that most researchers have a pretty long section about the methodological problems in their studies. Also, she did the analysis of the data herself. It might have been a good idea to use another person or to have someone double-check her data, or maybe even have a second person using the protocol and making independent judgments about the perpetrators' behavior. Also, we don't know if her predictions were accurate. Did the men she saw as being potentially harmful become abusive at some point after the court hearing?

I: All very good points. Anything else?

S: Should I chuck the article and not use it for my study?

I: Ah, the eternal question. Maybe you should use it but point out the flaws and say that the article had relevance for your study but that the methodology makes the findings unreliable. That's always a wise approach in research when there are limited studies in the literature. Am I right? Are there limited studies?

S: Well, no. There are lots of them. I should go back and do a better literature review, huh?

I: Excellent idea. Better to use well-done studies than badly done studies. Basing your research on poorly done studies just weakens your work.

S: Why did I know you'd say that?

I: It's my job to help you see the flaws in research. When you see the mistakes other people make, then perhaps you won't repeat them.

S: No, I mean that I'd need to do more work.

I: Sorry, but better a little more work now than a lot more later when I read your research study.

S: There goes my weekend.

SUMMARY

This chapter on critical thinking presents several research philosophies that might help the reader understand that researchers have points of view about the value of various approaches to research. To help the reader understand the positive and negative views of each philosophy of research, conflicting points of view are provided. Critical thinking means that you should be able to logically evaluate all research, even the research you find most appealing. Knowing about methodologies and beliefs regarding the use of research can help you do this. A progression of ideas about the evaluation of a research study is also provided to show how one can approach a piece of research and, with some idea of how to evaluate a study, determine if the study is useful, well done, and a credible piece of work. Remember that the process of selecting best evidence is grounded in your desire to do what's best for the client, not in your desire to reinforce your personal belief system.

Integrative Questions

1. Because there is so little well-done research on treatment effectiveness, don't we run the risk of discounting everything we read?

2. Was the study of perpetrators in the courthouse waiting room so poorly done that we'd want to discount it completely?

3. How can practitioners be expected to use best evidence based on critical thinking when a client is in a life-threatening crisis? Don't we do what needs to be done at the moment and hope that it works? If we don't, we could have a suicide or a homicide on our hands. What do you think?

4. Many of the more subjective research philosophies provided in this chapter seem more likely to produce important information than empiricism. At least nonempirical studies give us hope and they challenge us. Empirical studies are cold and discouraging, or are they?

5. Everybody knows that therapeutic relationships are the key to good treatment, but the author includes arguments against that belief. What's his point? That we don't have enough evidence for the belief, or that we shouldn't accept the belief at all?

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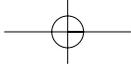
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