# Homework: Apply Daubert Standard to Digital Forensics Tests

## Learning Objectives: Students will be able to …

1. Summarize what the Daubert Standard is.
2. Given a digital forensic test, justify the test according to the five Daubert Standard questions.
3. Reflect on possible challenges to a digital forensic test according to Daubert Standard.

## Scenario:

You work with law enforcement as a digital forensic professional. In a criminal case, the prosecuting attorney has a digital forensic expert that claims she can discover guilty knowledge by administering a guilty knowledge test to a suspect. The judge may not allow the expert witness or guilty knowledge test results because of the Daubert Standard. Your job is to prepare the expert witness’ evidence to be permitted in court.

## Learning Task:

1. Ask [Google Bard](https://bard.google.com/) for a summary of what a guilty knowledge test or concealed knowledge test is.
2. Ask Google Bard for an example of a guilty knowledge test.
3. Read this article by [Cornell Law School on Daubert Standard](https://www.law.cornell.edu/wex/daubert_standard#:~:text=The%20Daubert%20case%20introduced%20a,pseudoscientific%20or%20unreliable%20expert%20testimony.). Never just trust an AI. Augment and verify its responses.

## Assignment Task:

1. In your own words, write a brief, one paragraph description of what the Daubert Standard is and who uses it?

The Daubert Standard is a method that trial court judges use to test the credibility of an expert witness testimony before being presented to a jury. It was established in 1993 and is now used in all federal courts. The Daubert Standard considers 5 factors in determining the validity of the expert witness. Those factors are whether the technique/theory can be and has been tested, if it has been published and subjected to peer review, its error rate, the maintenance of standards overseeing its operation, and lastly, whether it is widely accepted within a relevant scientific community.

1. The prosecuting attorney wants to use the guilty knowledge test and the testimony of the expert witness. Write a brief paragraph or list to answer each of the five Saubert Standard questions below to support the attorney’s position.
   1. Search [Google Scholar](https://scholar.google.com/) for “deception detection guilty knowledge test” or “concealed knowledge test” and skim several of the scientific articles available (or not) on the subject.
   2. Use the Google Scholar knowledge to support your answers to the five Daubert Standards below. Write your answer below in a brief paragraph or list of responses. You may make assumptions about the expert witness and her test as needed.
   3. Site your sources in APA format. If you use a reference in your answer, use an in-line citation. There is a reference section below for listing all your references in APA format as a bibliography.
   4. Do NOT use Google Bard for this step. This is your investigation and real forensics professionals need to manually assess the evidence.

**Daubert Standard Five Questions as relates to guilty knowledge test:**

A. Whether the technique (e.g., guilty knowledge test) or theory in question can be and has been tested.

The guilty knowledge test can and has most definitely been tested through an abundance of mock-crimes and other related experiments and conducted scenarios. To list a few articles to support that statement, there is “A quantitative review of the Guilty Knowledge Test”, “Innocence, Information, and the Guilty Knowledge Test in the Detection of Deception”, and “The validity of psychophysiological detection of information with the Guilty Knowledge Test: A meta-analytic review.”

B. Whether it has been subjected to publication and peer review.

Like the answer to the first question, the GKT is easily found to be reliable through its examples of publication and peer review. All the aforementioned articles have been published and peer reviewed, additionally, they have shown to be cited for use in further studies from other reputable sources.

C. Its known or potential error rate.

There are limitations and drawbacks to the GKT, and its error rate is likely the primary one. With that being said, the error rate in GKTs is normally shown to be around 10-20% for detecting guilt, while the error rate for detecting innocence is much better, with the low end being around 5-10%. Additionally, a lot of the data received from GKTs are a bit dated. In the modern day, the test has only gotten more accurate, and the scientific community is still striving to improve its accuracy further.

D. The existence and maintenance of standards controlling its operation; and

Firstly, the GKT is only conducted by professionals such as polygraph examiners. Furthermore, the rigid structure of the GKT in terms of its multiple-choice format is easy to maintain and govern due to the test’s simplicity. While the results and accuracy of the GKT can vary, it does not take away from the fact that the test is always conducted in a professional manner.

E. Whether it has attracted widespread acceptance within a relevant scientific community.

The GKT has been accepted by many experts in the fields of psychology and psychophysiology. More specifically, according to Iacono (2011), “The Guilty Knowledge Test (GKT) has gained favor with academic psychology, but outside of Japan, it is seldom used in the field.” The GKT still has a lot of room to grow, and it will take more time to determine if the test can be used in more applications. Still, it is generally accepted within its relevant scientific communities and is far more favorable than that of the alternative tests that have been used/experimented with in the past.

**APA References:**

American Psychological Association. (n.d.-a). *Apa Dictionary of Psychology*. American Psychological Association. https://dictionary.apa.org/guilty-knowledge-test

American Psychological Association. (n.d.-b). *Apa PsycNet*. American Psychological Association. https://psycnet.apa.org/record/2011-07195-001

American Psychological Association. (n.d.-c). *Apa PsycNet*. American Psychological Association. https://psycnet.apa.org/record/2003-04931-014

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American Psychological Association. (n.d.-e). *Apa PsycNet*. American Psychological Association. https://psycnet.apa.org/record/2001-01869-012

The guilty knowledge test and the modified Stroop task ... - sage journals. (n.d.-b). https://journals.sagepub.com/doi/abs/10.2466/pr0.2003.92.2.683

Innocence, information, and the guilty knowledge ... - Wiley Online Library. (n.d.-a). https://onlinelibrary.wiley.com/doi/abs/10.1111/j.1469-8986.1984.tb00257.x

1. Being critical of one’s own position and preparing for rebuttals is an important skill in a digital forensic professional mindset---healthy skepticism. Ask [Google Bard](https://scholar.google.com/) “how can one challenge a guilty knowledge test according to the Daubert Standards?” Copy and paste Bard’s answer here. You do not need to rebut Bard’s answer. This is simple skepticism exercise.

Understanding the Daubert Standards:

* These federal guidelines govern the admissibility of expert testimony in U.S. courts.
* They ensure that evidence is scientifically valid and reliable.

Key Factors for Challenging Guilty Knowledge Tests:

1. Reliability and Error Rates:
   * Question the test's accuracy and error rates in correctly identifying guilty knowledge.
   * Cite studies or expert opinions that cast doubt on its reliability.
   * Highlight any inconsistencies in test results or administration procedures.
2. Peer Review and Publication:
   * Inquire if the test has been subject to rigorous peer review and published in reputable scientific journals.
   * Lack of such validation can raise concerns about its scientific acceptance.
3. General Acceptance:
   * Determine whether the test is generally accepted within the relevant scientific community.
   * If not, it may not meet Daubert's standards for admissibility.
4. Known or Potential Rate of Error:
   * Explore any known or potential error rates associated with the test.
   * Argue that high error rates undermine its reliability and could lead to false positives.
5. Standard Operating Procedures:
   * Verify if standardized procedures exist for administering and interpreting the test.
   * Inconsistent practices could jeopardize its validity.
6. Qualifications of Test Administrators:
   * Assess the expertise and qualifications of those administering and interpreting the test.
   * Lack of proper training or expertise could raise concerns about the validity of the results.
7. Alternative Explanations for Test Results:
   * Propose alternative explanations for test results that don't necessarily indicate guilty knowledge.
   * Consider factors like anxiety, stress, or misunderstanding of questions.

Additional Considerations:

* State-Specific Rules: Certain states may have additional requirements or variations for admitting polygraph evidence.
* Legal Counsel: It's crucial to consult with an experienced attorney specializing in polygraph evidence and Daubert challenges to develop a strong legal strategy.

Remember: Successfully challenging a guilty knowledge test under Daubert can significantly impact the admissibility of evidence and potentially the outcome of a case.

## Deliverable:

1. Append your last name to the file name of this document e.g., “Homework Daubert Standard [by LAST NAME].docx.”
2. Submit your assignment to [\\WTclass\cidm6356\lesosns\Week 1\Homework Daubert Standard\](file:///\\WTclass\cidm6356\lesosns\Week%201\Homework%20Daubert%20Standard\)

## Grading Rubric:

100 points.

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| **Criteria** | **Digital Forensic Professional (100%)** | **Student Quality (<50%)** |
| Completeness and Evidence of Learning | All questions answered and reference provided. | Some questions not answered. |
| Thoroughness | All questions were answered with enough detail to satisfy the Daubert Standard. APA format is used. | Some questions were vague, did not elaborate beyond a “yes” or “no” or is likely a judge would dismiss the test based on a lack of supporting justification. |