

*Engagement in the  
Literature:*  
How Do Students  
Understand the Use of  
Academic Sources?

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# The Hot Hand?

Is an NBA player who made his last three shots more likely to make his next shot than a player who missed his last three shots ?

If you looked at the psychological literature, would you find evidence that the “hot hand” is real?

# Why Do We Use Make Students Use Academic Sources?

1. We want them to develop the ability to find relevant sources. In other words, the goal is for students to be able to conduct effective searches for information.
2. We want them to be able to provide evidence for their claims. In other words, the goal is for students to use academic sources to provide warrant for the claims they make.

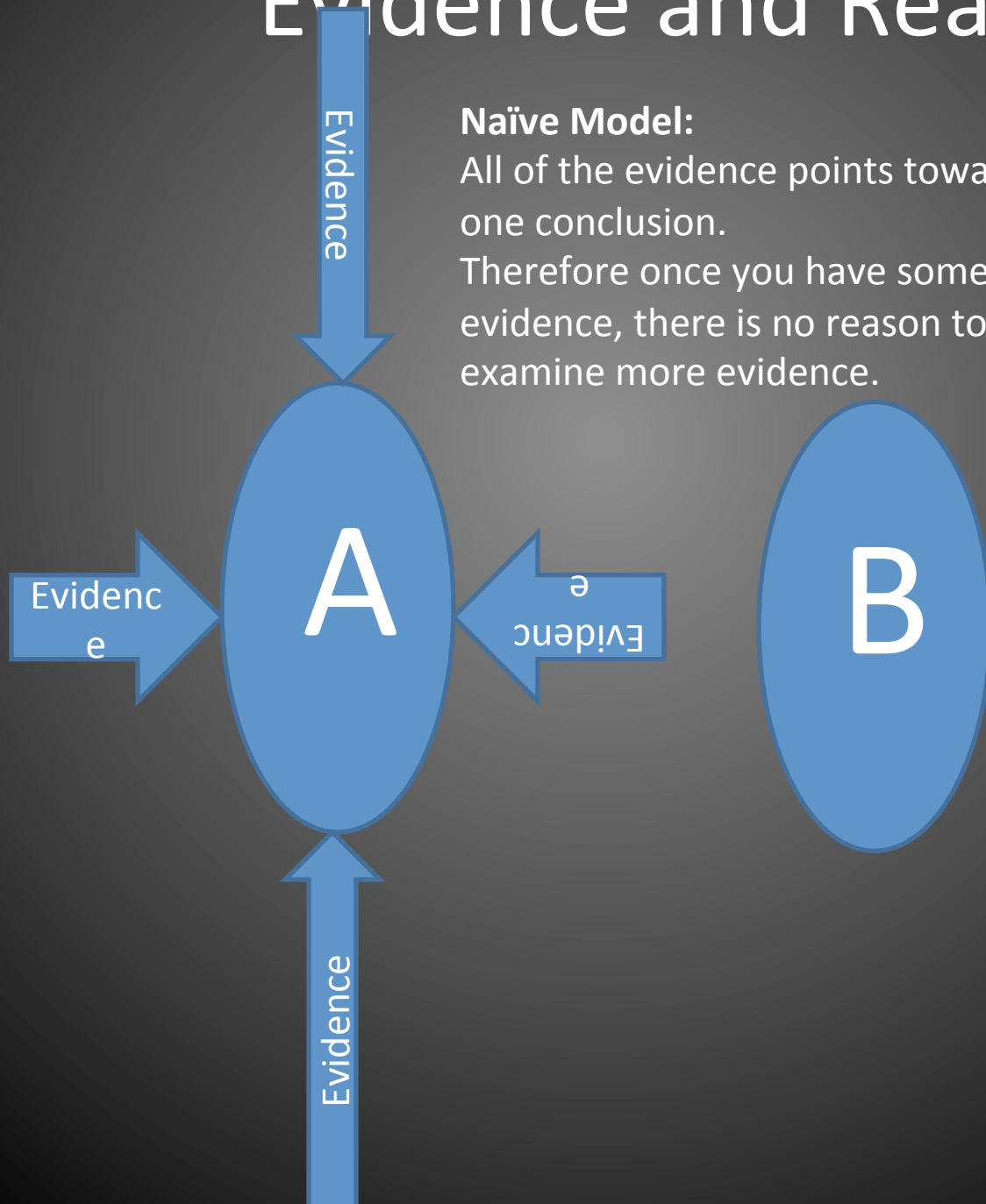
# How can providing evidence be a bad thing?

- Evidence is supposed to convince the reader to accept the claims made.
- If a student is simply required to include some evidence, she is far more likely to cherry pick a little supporting evidence for her current belief than she is to do anything like thoroughly examining the available evidence to decide what to use to draw correct conclusions.
- In that situation, evidence will do more to make her *convincing* than it will do to make her *correct*.

Commonsense tells us  
that the world is flat.

So does quite a bit of  
the evidence.

# Relationship Between Evidence and Reality



# Relationship Between Evidence and Reality

## Naïve Model:

All of the evidence points toward one conclusion.

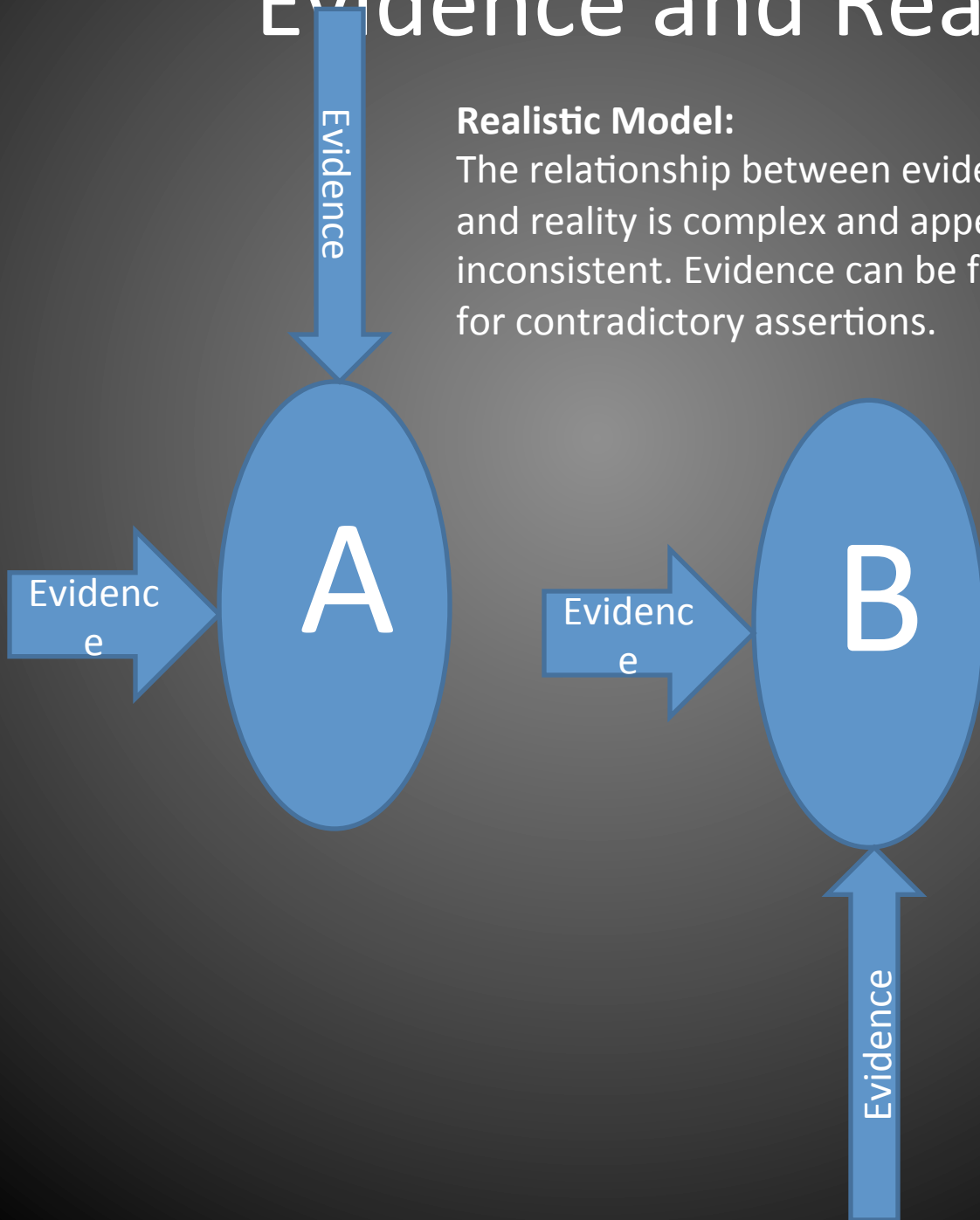
Therefore once you have some evidence, there is no reason to examine more evidence.

*Our philosophical position about the relationship between evidence and reality affects the way that we use evidence.*

# Relationship Between Evidence and Reality

## Realistic Model:

The relationship between evidence and reality is complex and appears inconsistent. Evidence can be found for contradictory assertions.





# Relationship Between Evidence and Reality

## **Realistic Model:**

Since it's possible to find evidence pointing toward either of two contradictory assertions, finding a single piece of evidence does not determine what is true.

It is necessary to look at the larger body of evidence.

*Our philosophical position about the relationship between evidence and reality affects the way that we use evidence.*

## Main Point:

Asking a student to provide evidence to support her position

is not the same as asking her to take on a position that is supported by the larger body of available evidence.

Assuming that we want students to take on positions supported by the body of evidence...

1 – How do we get them to that point?

2 – Is asking them to provide evidence for their existing beliefs a step **towards** taking on the generally-supported positions?

Or is it a step **away** from that goal?

# Levels of Engagement

1. *Opinion-Stating*: Merely expressing what she already believes.
2. *Weak Evidence*: Stating her opinion, mentioning cherry-picked evidence that corresponds with prediction of the opinion.
3. *Strong Evidence*: Stating her opinion, mentioning cherry-picked evidence that supports opinion specifically.
4. *Surface Engagement*: Addressing “straw man” versions of alternate positions.
5. *Fair Engagement*: Stating her opinion, arguing for that opinion fairly, without cherry-picking, while addressing counterarguments and alternate positions.

## 1. *Opinion-Statement*: Merely expressing what she already believes.

But at the outset let me celebrate two things data does really well. First, it's really good at exposing when our intuitive view of reality is wrong. For example, every person who plays basketball and nearly every person who watches it believes that players go through hot streaks, when they are in the groove, and cold streaks, when they are just not feeling it.

But Thomas Gilovich, Amos Tversky and Robert Vallone found that a player who has made six consecutive foul shots has the same chance of making his seventh as if he had missed the previous six foul shots.

When a player has hit six shots in a row, we imagine that he has tapped into some elevated performance groove. In fact, it's just random statistical noise, like having a coin flip come up tails repeatedly. Each individual shot's success rate will still devolve back to the player's career shooting percentage.

- David Brooks, "The Philosophy of Data" (op-ed column), New York Times, 2/4/13

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*Brooks identifies the "hot hand" misconception, and presents the evidence that exposes it as a misconception. Any response to Brooks' column must address that evidence, right?*

## **1. *Opinion-Stating*: Merely expressing what she already believes.**

### **To the Editor:**

David Brooks is surely wrong about statistics and sports. In fact, players do get in a groove in shooting basketball free throws, when their mechanics are correct. Under such circumstances, free-throw percentages go up, and the chance of success for any particular free throw increases.

By contrast, when mechanics deteriorate, percentages decrease, and so do chances of success. There may be ebb and flow, but it's hardly "random statistical noise."

*(Name removed)*

St. Louis, Feb. 5, 2013

*The writer is a former basketball coach at (Institution removed).*

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St. Louis, Feb. 5, 2013

*The writer is a former basketball coach at (Institution removed).*

*The author of this letter has completely ignored the evidence presented by Brooks, and has failed to provide any of his own.*



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Imagine that our letter-writer had included some evidence of his own, but without addressing the evidence that Brooks presented.

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*Yes – but you’d find that the collective evidence suggests, on the balance, that the “hot hand” is a fallacy.*

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