

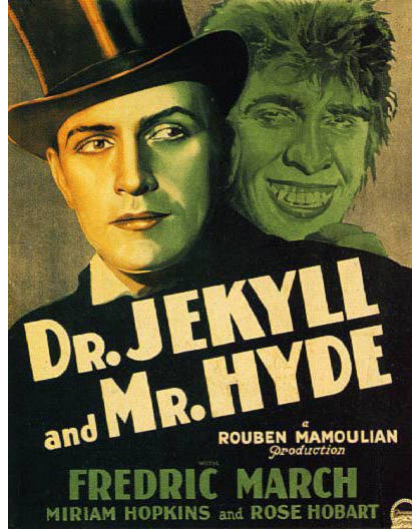
## Judgment-Updating among Software Professionals



## First Impressions are Important



## but, First Impressions can be Misleading



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## Software Professionals are frequently Exposed to Information (e.g., claims and evidence) on Tools, Techniques and Methods

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**Some of this information is (on purpose or accidentally)...**

- irrelevant,
- misleading,
- incorrect.

**RESEARCH QUESTION:**

**To what extent are software professionals able to adjust their judgments (evaluation, opinions,...) when they are informed about the lack of validity of the information?**

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**Study 1: Risk-seeking programmers**

**PARTICIPANTS:** Study 1 was conducted at a large developer conference in Oslo, Norway (JavaZone 2007). The participants consisted of 160 software professionals attending a seminar on evidence-based software engineering.

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## Study 1: Risk-seeking programmers

CONTEXT: “There is a large difference in how risk-seeking programmers are. Some programmers frequently try new ways of programming, while others stick to what they know best and know will work. Assume that we define a risk-seeking programmer as one who agrees in the statement: “I like to find own, innovative ways of solve problems” and that a programmer is better than another if she/he develops software with similar quality (measured as number of errors and perceived maintainability) more efficiently.”

## Study 1: Risk-seeking programmers

TREATMENTS:

- T1a: “A recent Canadian study showed that the **risk-willing** programmers performed better.”
- T1b: “A recent Canadian study showed that the **risk-averse** programmers performed better.”
- T2a: “Provide one argument i favor of that the **risk-willing** programmers perform better.”
- T2b: “Provide one argument i favor of that the **risk-averse** programmers perform better.”
- T3: “The Canadian study was invented to impact your judgment.”

## Study 1: Risk-seeking programmers

JUDGMENT (J): All situations taken into consideration, which of the statements below to you think is most correct? (Select only one.)

- 1) The risk-seeking always perform better
- 2) The risk-seeking almost always perform better
- 3) The risk-seeking perform better most of the time
- 4) The risk-seeking perform better in slightly more than half of the situations
- 5) The risk-seeking perform better in about half of the situations
- 6) The risk-seeking perform worse in slightly more than half of the situations
- 7) The risk-seeking perform worse most of the time
- 8) The risk-seeking almost always perform worse
- 9) The risk-seeking always perform worse

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## Study 1: Risk-seeking programmers

TABLE I  
design of study 1

Group	Phase 1	Phase 2 (immediately after)	Phase 3 (two weeks later)
A	J (control group)	-	-
B	T1a, T2a, then J	T3, then J	J
C	T1b, T2b, then J	T3, then J	J
D	T1a, then J	T3, then J	J
E	T1b, then J	T3, then J	J
F	T2a, then J	T1a, then J	-
G	T2b, then J	T1b, then J	-

T1a/b: Canadian study, risk-willing better/worse.

T2a/b: Own argument, risk-willing better/worse

T3: Informed that the Canadian study was not real.

J: Judgment

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**TABLE II**  
TREATMENT EFFECTS

Group – Phase – Treatment	Mean
A: Control group.	5,0
B - Phase 1 - Misleading study, then one-sided argument. Both in favor of risk-willing programmers.	3,6
C – Phase 1 - Misleading study, then one-sided argument. Both in favor or risk-averse programmers.	5,6
D – Phase 1 - Misleading study in favor of risk-willing programmers.	4,1
E – Phase 1 - Misleading study in favor of risk-averse programmers.	5,5
F – Phase 1 - One-sided argument in favor of risk-willing programmers	4,6
G – Phase 1 - One-sided argument in favor of risk-averse programmers.	5,1
F – Phase 2 - Initial judgment in-between one-sided argument and study in favor of risk-willing programmers.	4,4
G – Phase 2 - Initial judgment in-between one-sided argument and study in favor of risk-averse programmers.	5,1

**TABLE III**  
**Judgment when informed about the validity of the study**  
**(original judgment in brackets)**

Group	Mean
B – Phase 2 (Phase 1: Misleading study, then one-sided argument. Both in favor of risk-willing programmers.)	4,0 (3,6)
C – Phase 2 (Phase 1: Misleading study, then one-sided argument. Both in favor of risk-averse programmers.)	5,1 (5,6)
D – Phase 2 (Phase 1: Misleading study in favor of risk-willing programmers.)	4,2 (4,1)
E – Phase 2 (Phase 1: Misleading study in favor of risk-averse programmers.)	4,9 (5,5)

**TABLE IV**  
**judgments, phase 1, 2 and 3 (two weeks later)**

Group	Mean Phase 1	Mean Phase 2	Mean Phase 3
BD-Phase 1	3,3	3,5	3,5
CE-Phase 1	5,4	5,0	4,9

## **Why didn't they re-adjust to a neutral state of mind?**

- They didn't know how much they had been impacted by the study and/or the generation of an one-sided argument.
  - Re-adjustment is difficult.

Why under-adjustment?

- Comprehension as accepting (de-accepting difficult?)
- Primacy effect (lasting first impressions)
- Cognitive dissonance (I wasn't that much impacted...)

## What should we learn?

- Avoid exposure to misleading information.
  - If already exposed, let other make important decisions.
- Do not believe you can re-adjust to an unimpacted state-of-mind.
- Avoid situations that are likely to bias your judgment:
  - demonstrations of tools
  - dinners with vendors
  - reports written by people with vested interests
  - .....