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When Being Sad Improves Memory Accuracy: The Role of Affective State in Inadvertent Plagiarism

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When Being Sad Improves Memory Accuracy: The Role of Affective State in Inadvertent Plagiarism

Amanda C. Gingerich Hege



**BUTLER
UNIVERSITY**

Gettysburg College Homecoming
Psychology Symposium
16 October 2009

Affect-as-Information Hypothesis¹

- Affective state provides information about the current situation and how it should be interpreted.



=



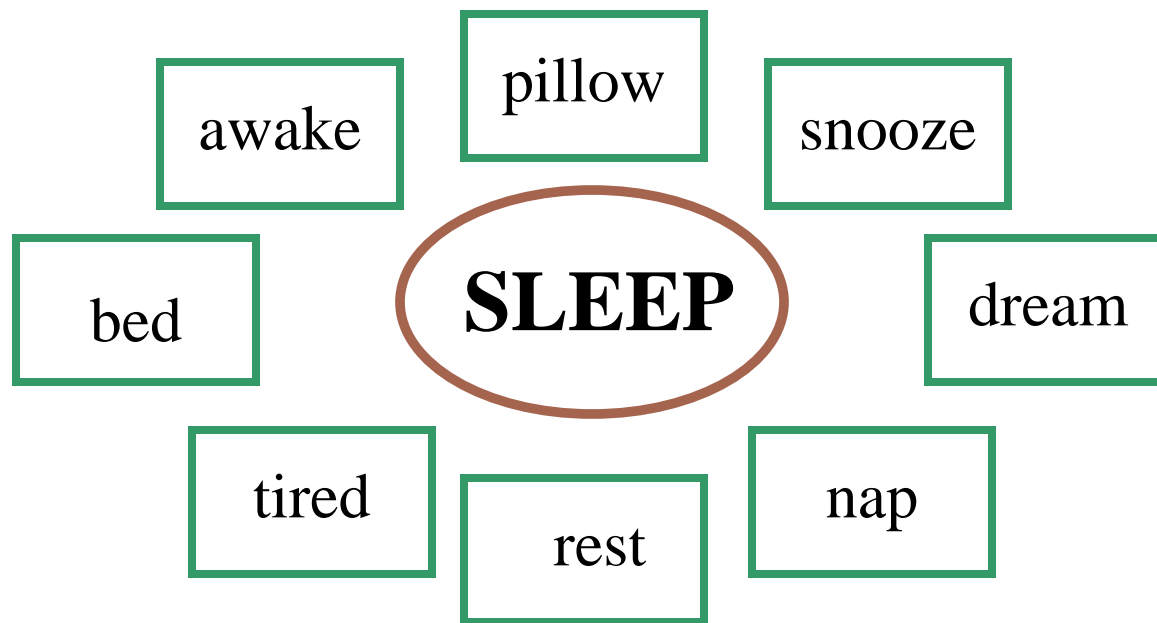
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¹ Clore, Schwarz, & Conway (1994); Gasper & Clore (2002); Schwarz & Clore (1983)



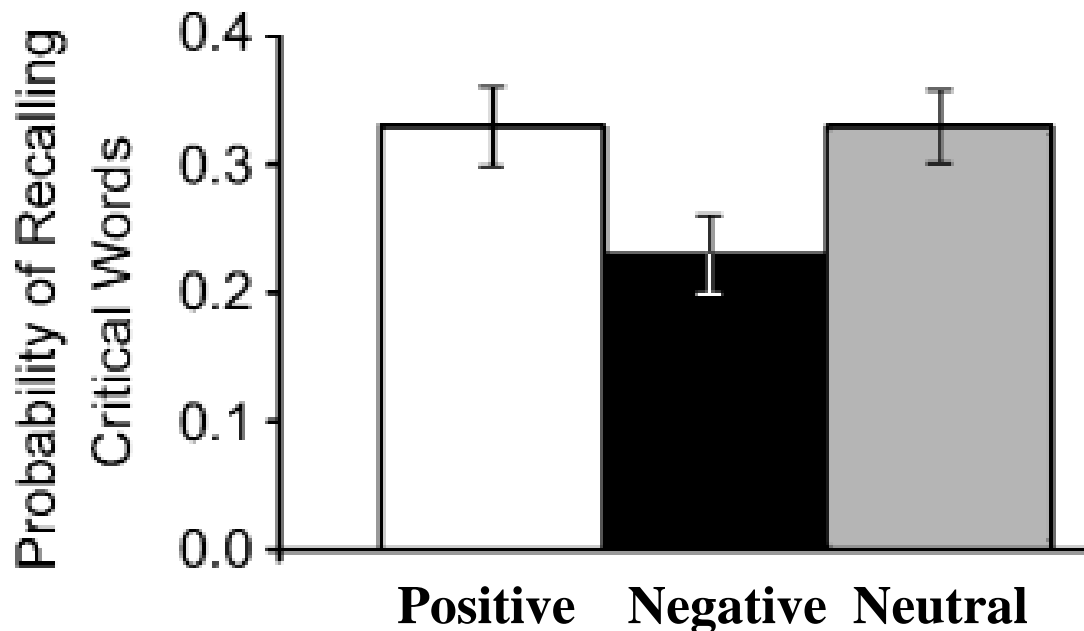
Affective State & Item Memory





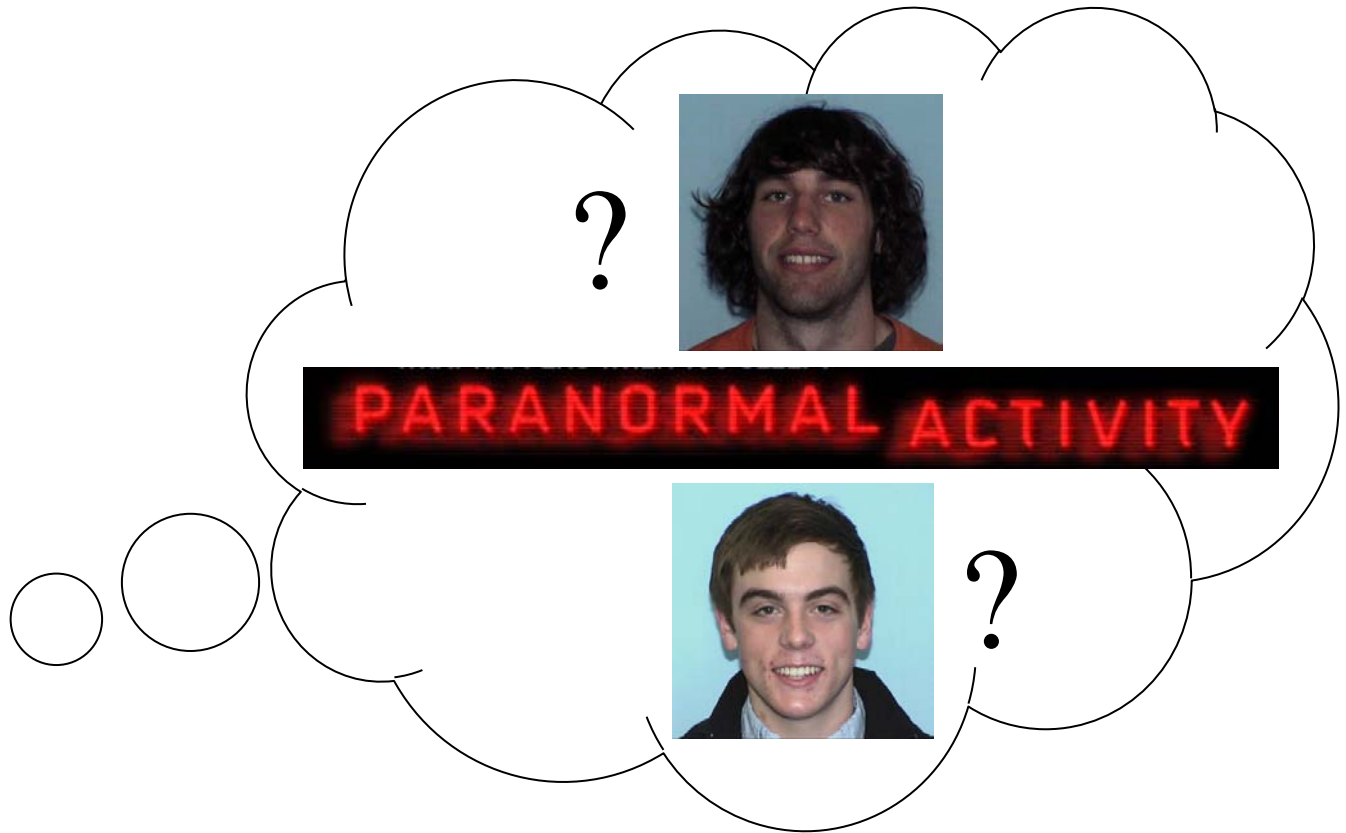
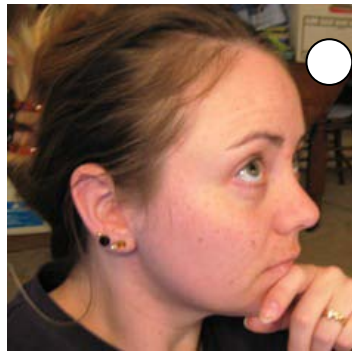
Affective State & Item Memory

- Negative affective state (i.e., sad mood) has been shown to reduce false memory errors ²



² Storbeck & Clore (2005)

Does Affective State Influence Source Memory?



What is Inadvertent Plagiarism?

- Memory error that occurs when one
 - (a) claims a previously-encountered idea to be a new idea or
 - (b) claims an idea generated by someone else to be one's own idea.



Also known as:

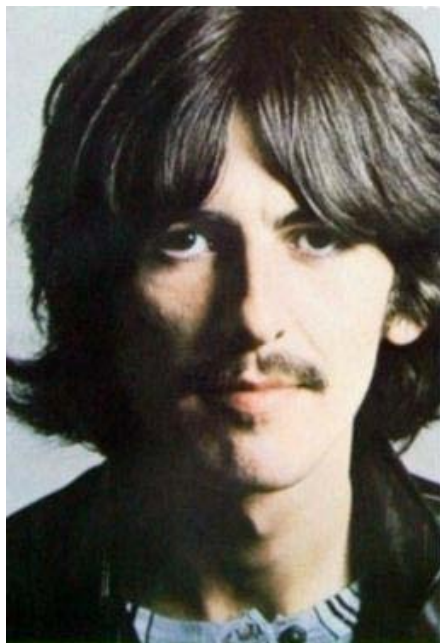
Cryptomnesia

Unintentional Plagiarism

Unconscious Plagiarism

What is Inadvertent Plagiarism?

George Harrison vs. Bright Tunes Music Corp.



Three-Phase Procedure³



³ Brown & Murphy (1989, Exp. 1)

Initial Generation

Trial 1:

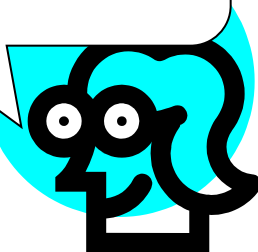
flute



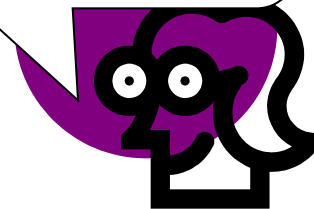
violin



guitar



piano



Initial Generation

Trial 2:

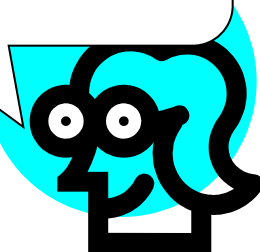
saxophone



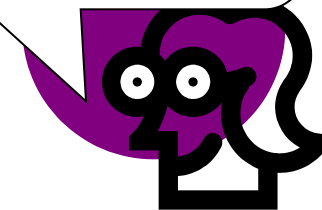
cello



bassoon



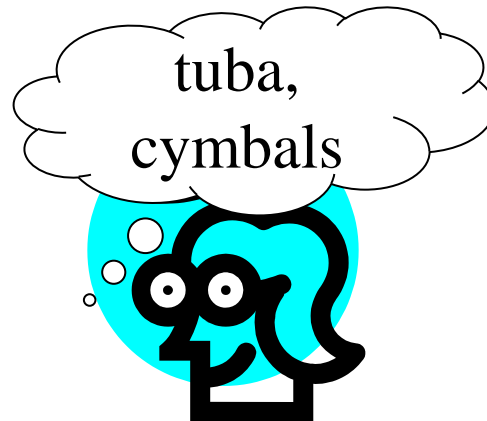
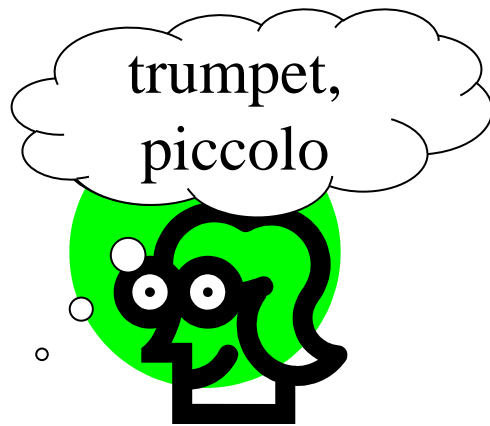
oboe



Recall-Own Phase



Generate-New Phase



****Significant Inadvertent Plagiarism in every Phase****



Experiment 1

Can mood influence
inadvertent plagiarism?

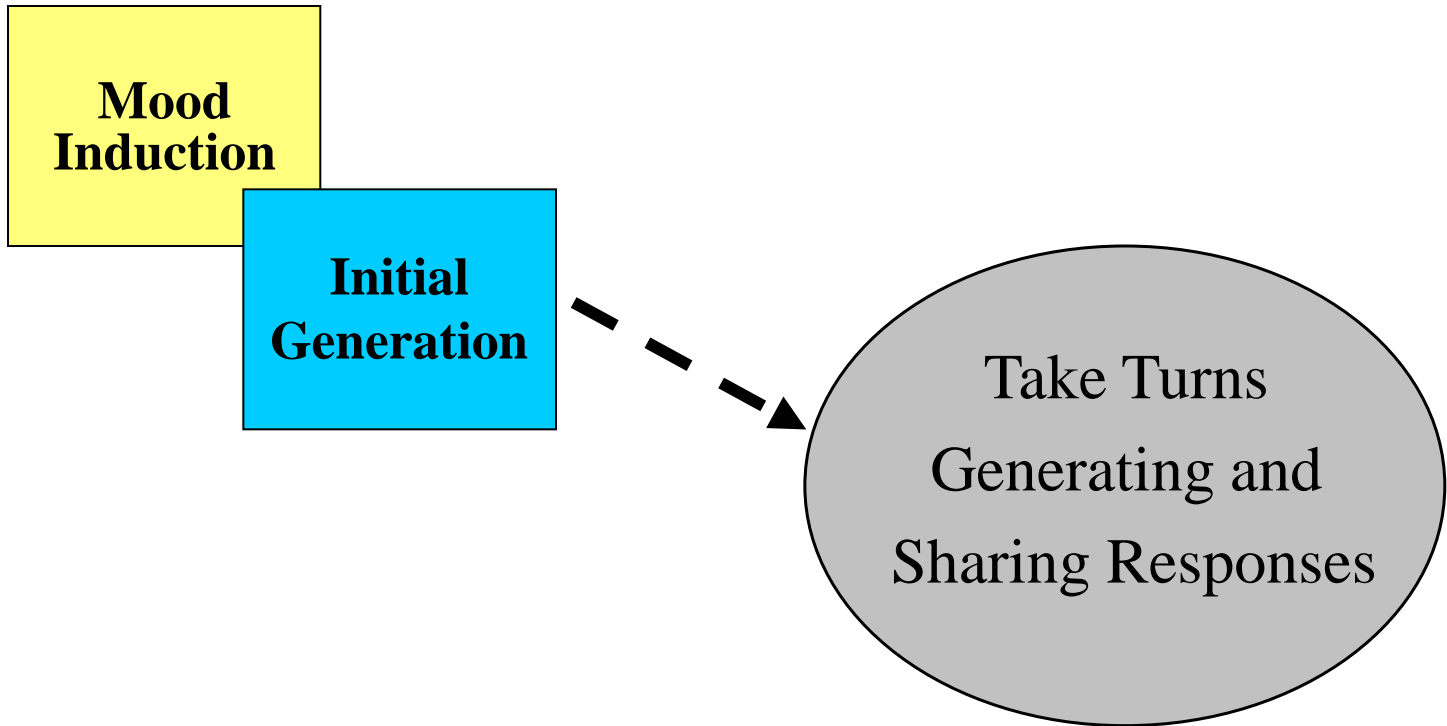
Overview of Procedure

**Mood
Induction**



Write about Happy or
Sad Event for Total of
11 Minutes

Overview of Procedure



Boggle Paradigm⁴

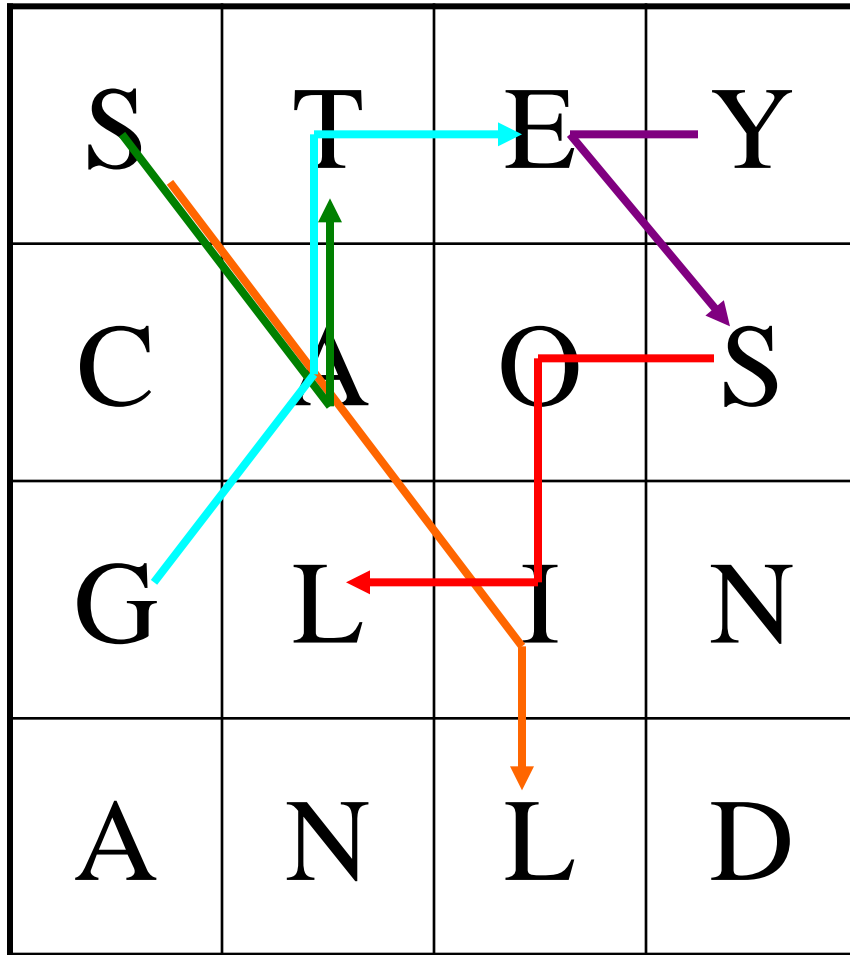


⁴Marsh & Bower (1993)

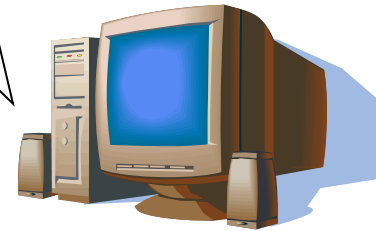
Boggle Paradigm⁴

Initial-Generation

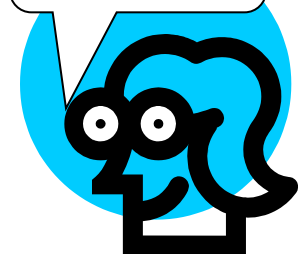
Trial 1



sat, yes,
soil



gate



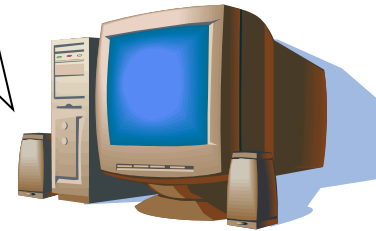
Boggle Paradigm⁴

Initial-Generation

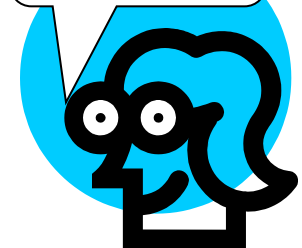
Trial 2

S	T	E	Y
C	A	O	S
G	L	I	N
A	N	L	D

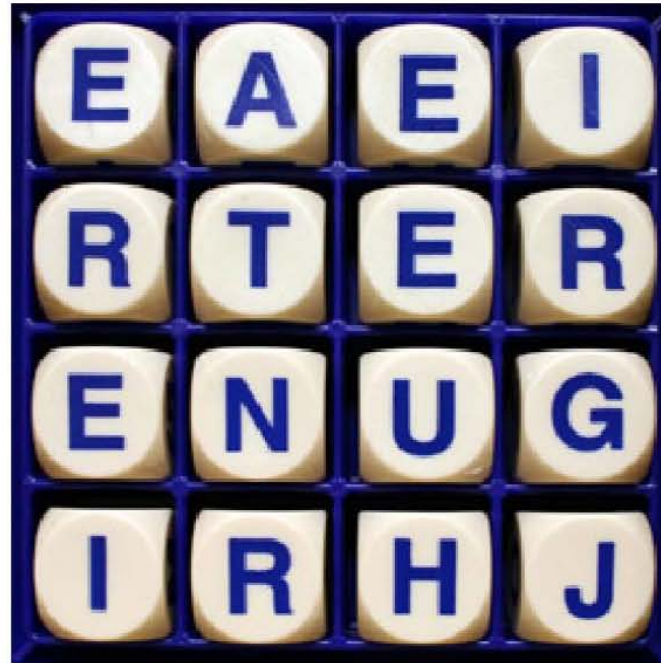
tail, ate,
son



cat



Initial Generation Computer's Turn



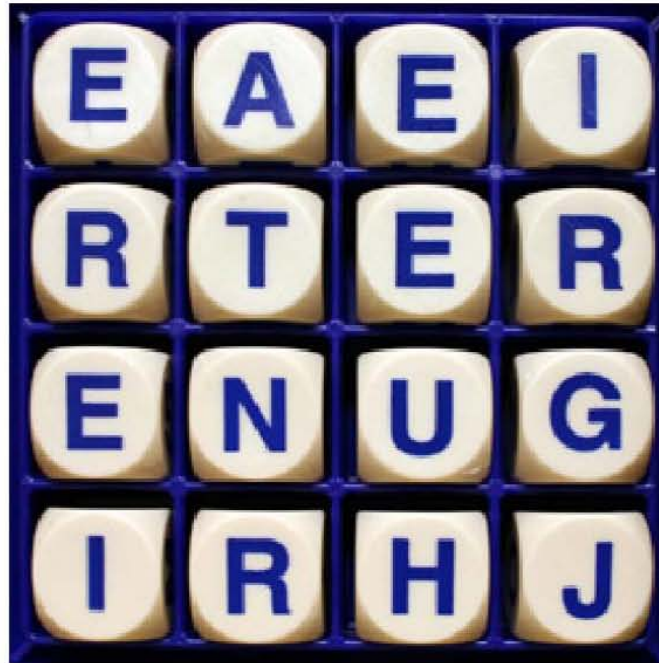
The computer's word is: GREEN

When you have located this word, click the button below.

I've found it

Initial Generation

Participant's Turn



Enter a **new** word:

Submit

Skip

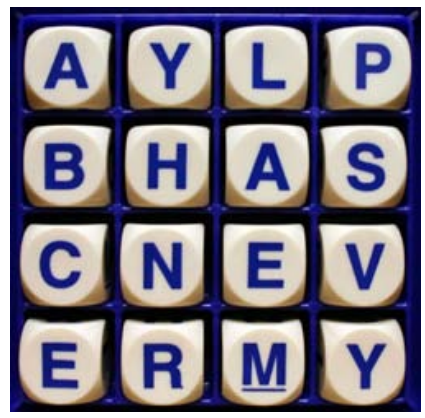
Technical problems? Please [contact us](#) and let us know.



Materials

Four trials for
each of 6 puzzles

Total Generations:
Computer: 72
Participant: 24





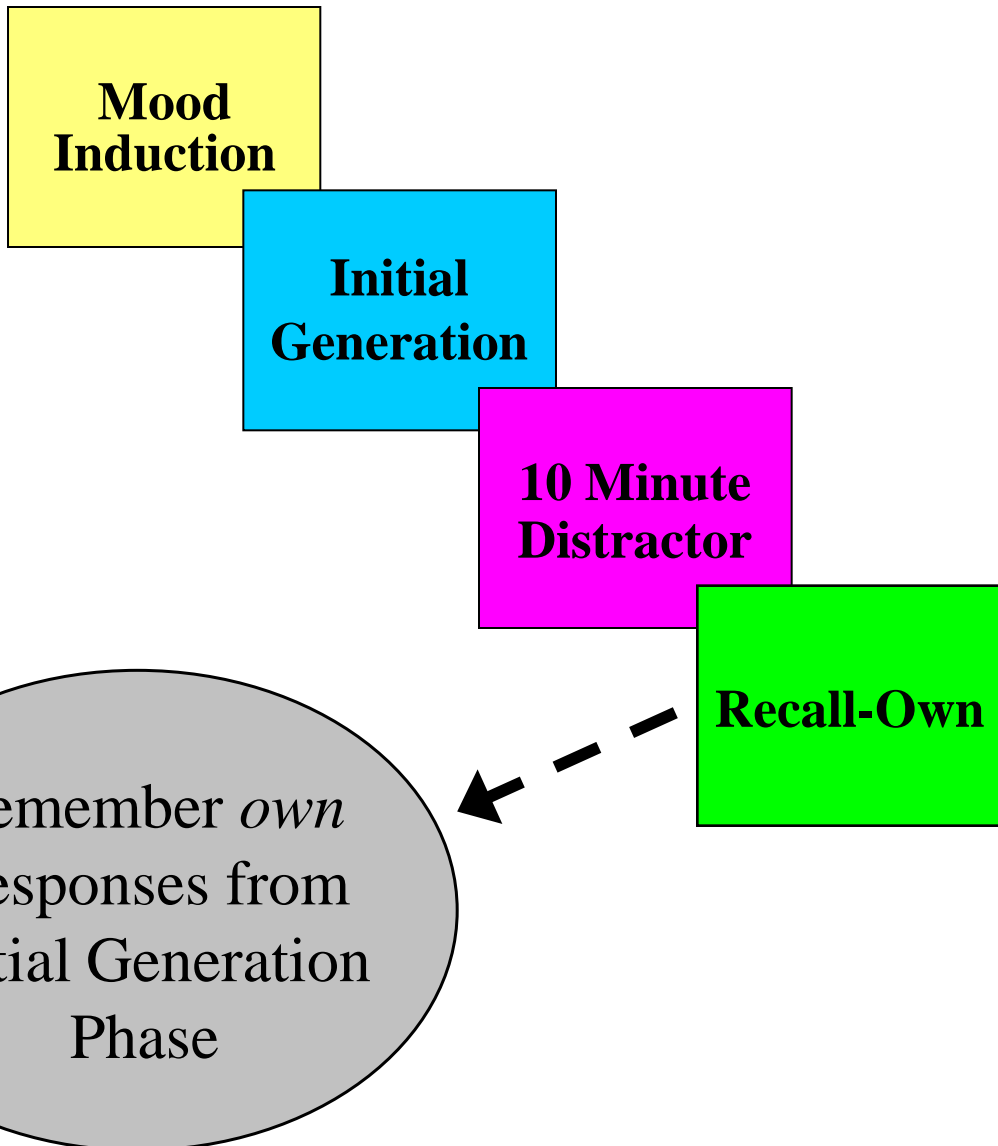
Overview of Procedure

**Mood
Induction**

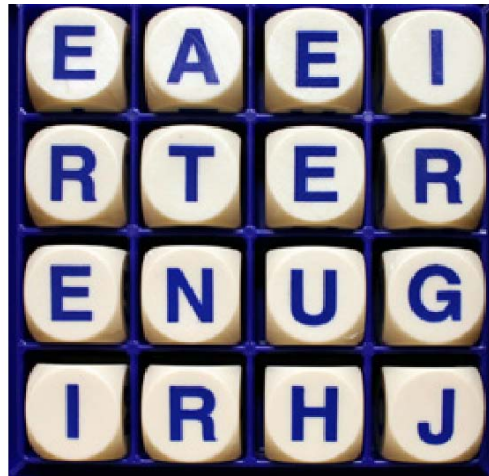
**Initial
Generation**

**10 Minute
Distractor**

Overview of Procedure



Recall-Own Task



Please enter the four words that *you* generated in the previous phase below in any order.

Your word: Confidence:

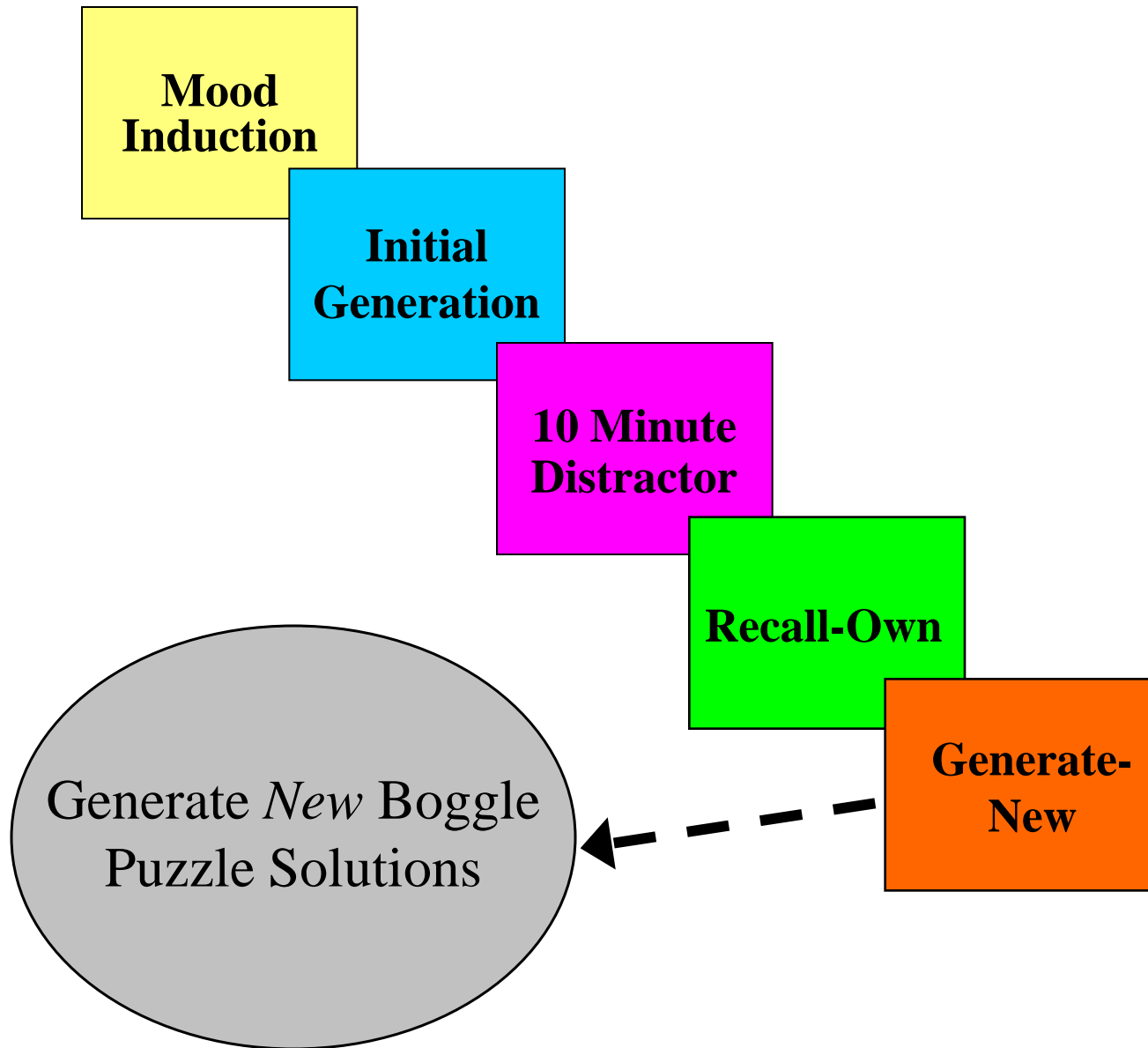
Your word: Confidence:

Your word: Confidence:

Your word: Confidence:

Submit

Overview of Procedure



Generate-New Task



Please fill in four *new* words that have not been presented in the previous phases.

Your word: Confidence:

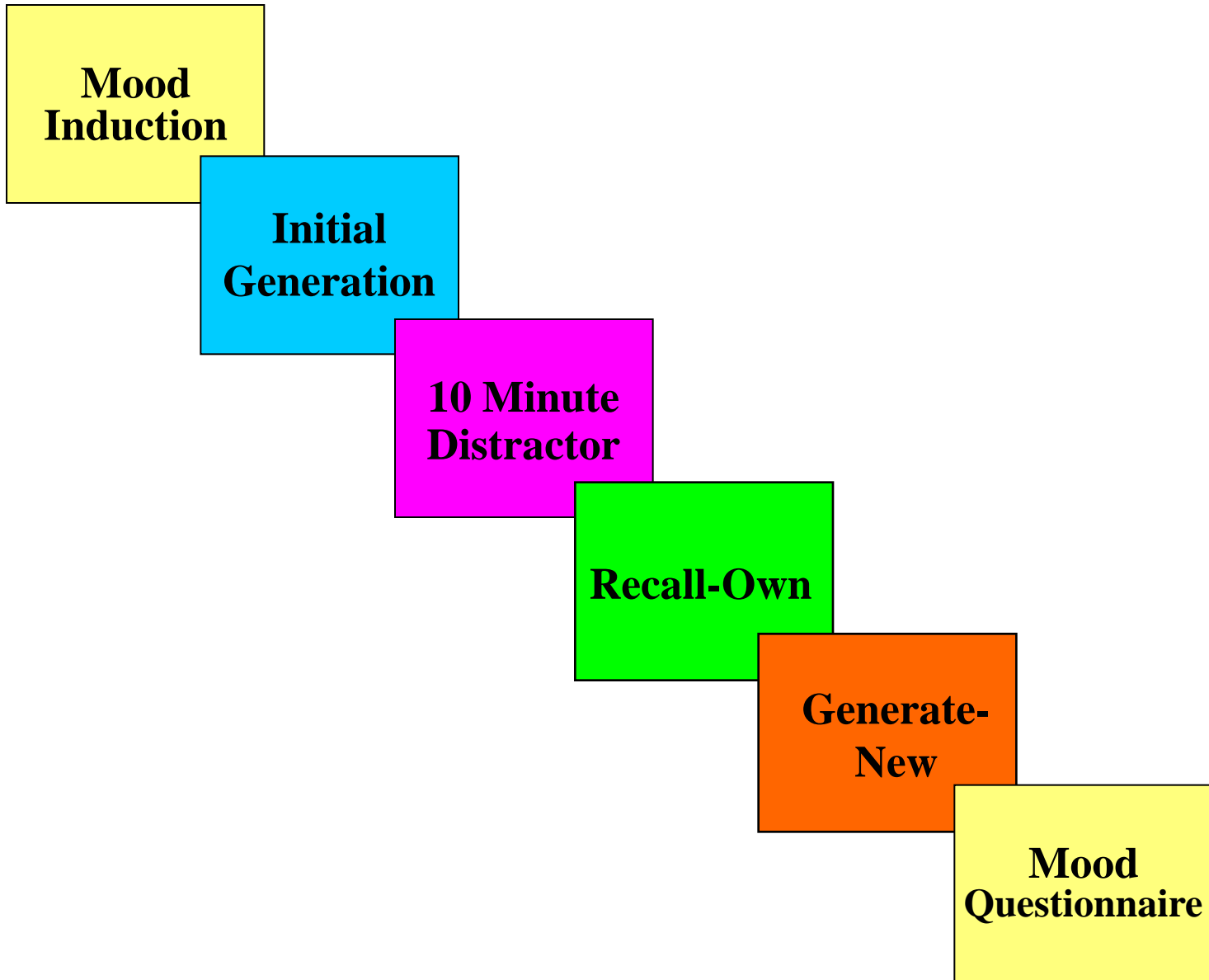
Your word: Confidence:

Your word: Confidence:

Your word: Confidence:

Submit

Overview of Procedure





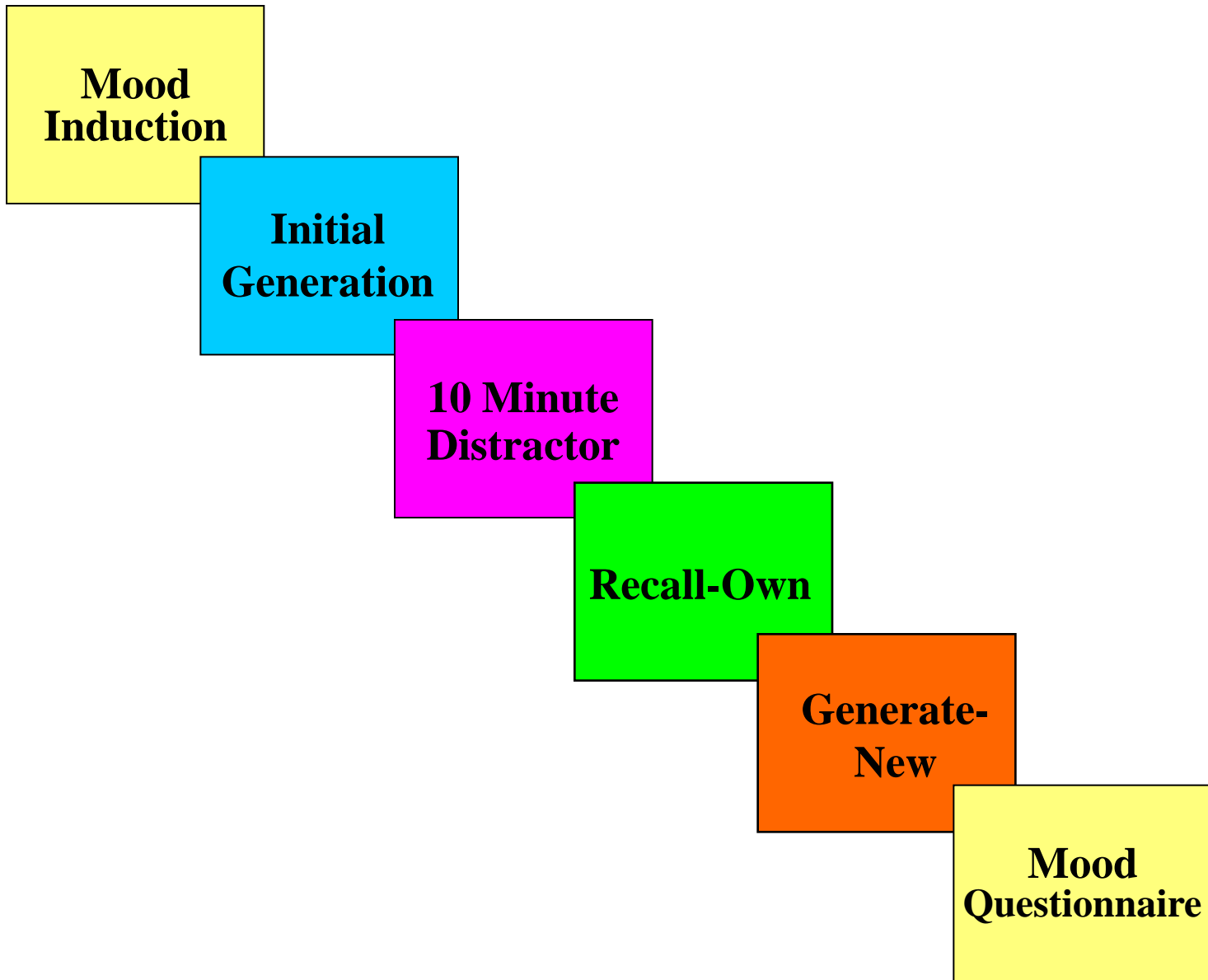
Mood Questionnaire

Very Unhappy	1	←————→	7	Very Happy
Very Unpleasant	1	←————→	7	Very Pleasant
Very Negative	1	←————→	7	Very Positive

Please describe how you were feeling while you were writing your story.

Please describe how you are feeling right now, at this moment.

Overview of Procedure



Data Scoring

Computer-Generated:

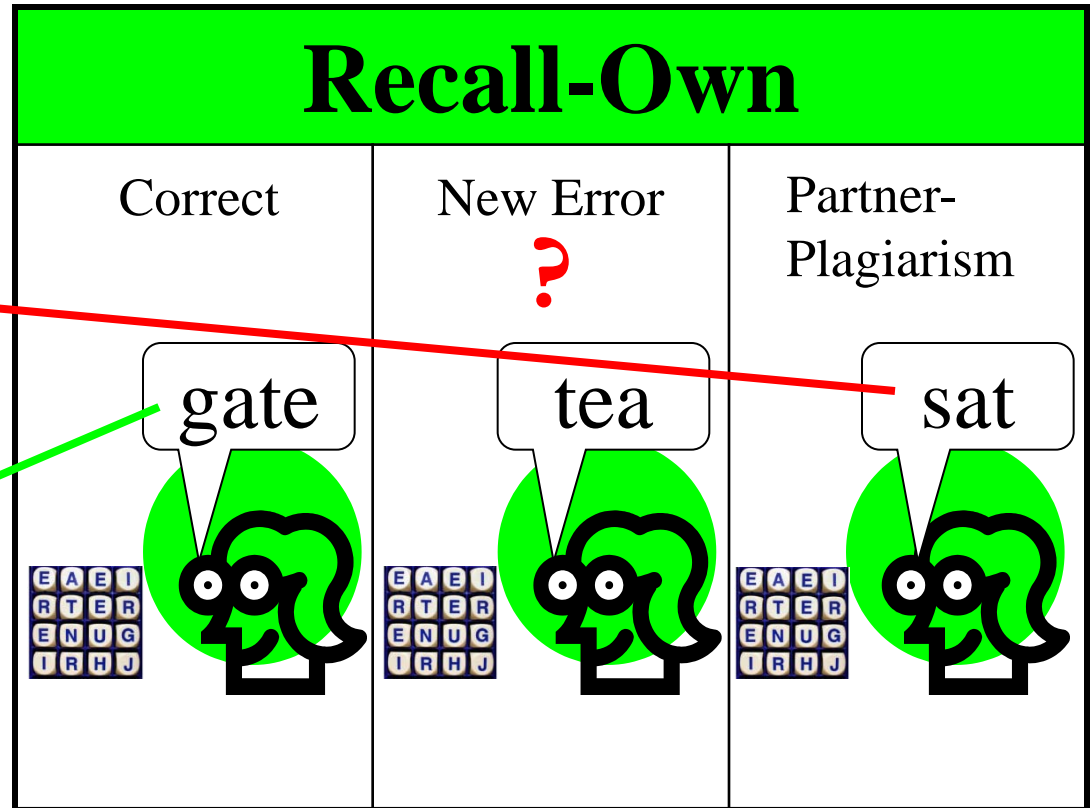
Trial 1: sat, yes, soil

Trial 2: tail, ate, son

Participant-Generated:

Trial 1: gate

Trial 2: cat



Decision Processes Required in Recall-Own Phase⁵

Computer-Generated:

Trial 1: sat, yes, soil

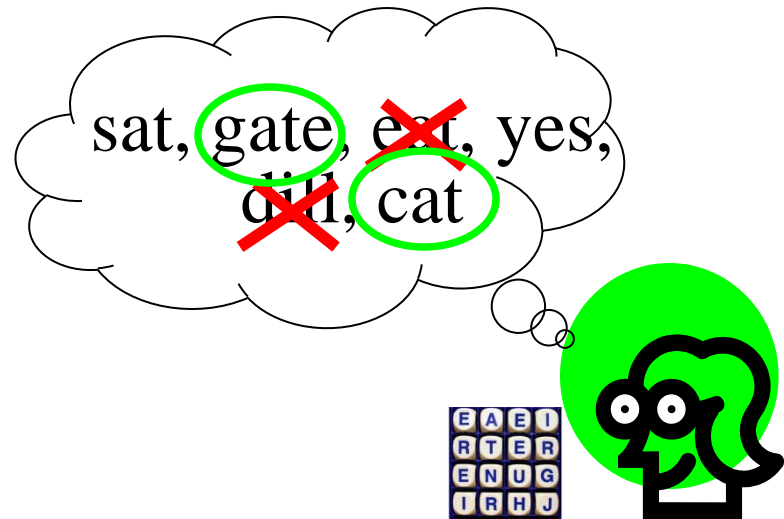
Trial 2: tail, ate, son

Participant-Generated:

Trial 1: gate

Trial 2: cat

Recall-Own		
Correct	New Error	Partner-Plagiarism



⁵ Landau & Marsh (1997)

Data Scoring

Computer-Generated:

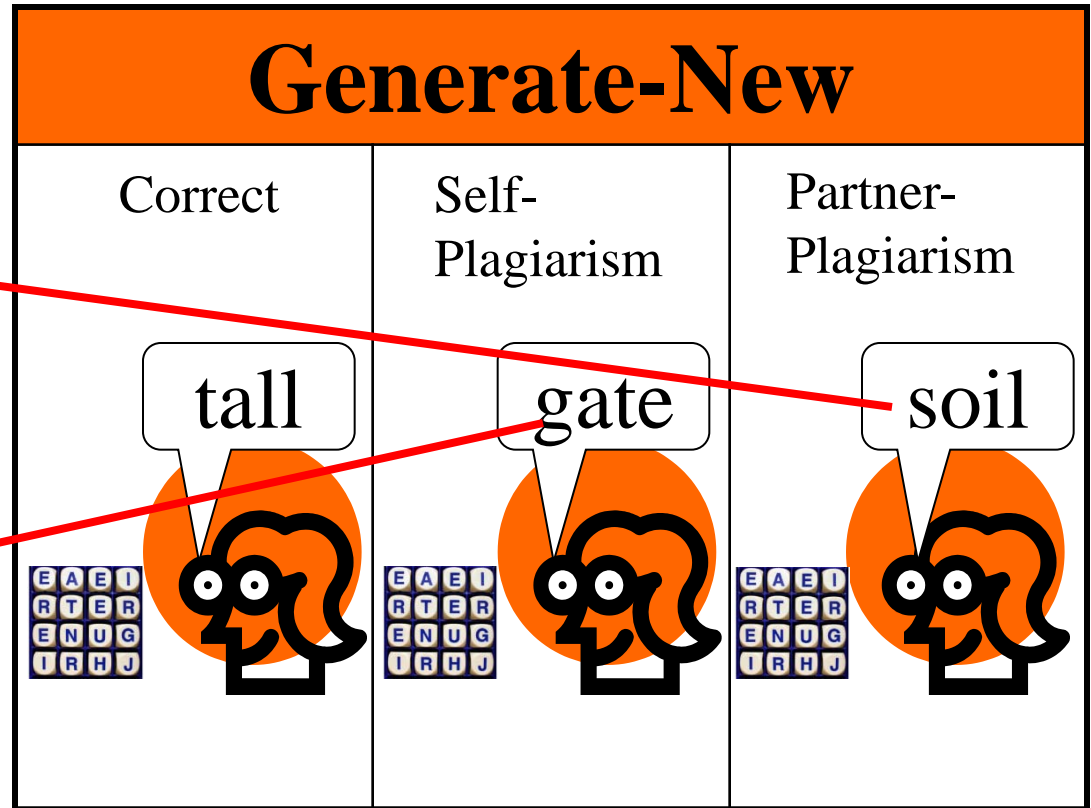
Trial 1: sat, yes, soil

Trial 2: tail, ate, son

Participant-Generated:

Trial 1: gate

Trial 2: cat



Decision Processes Required in Generate-New Phase⁵

Computer-Generated:

Trial 1: sat, yes, soil

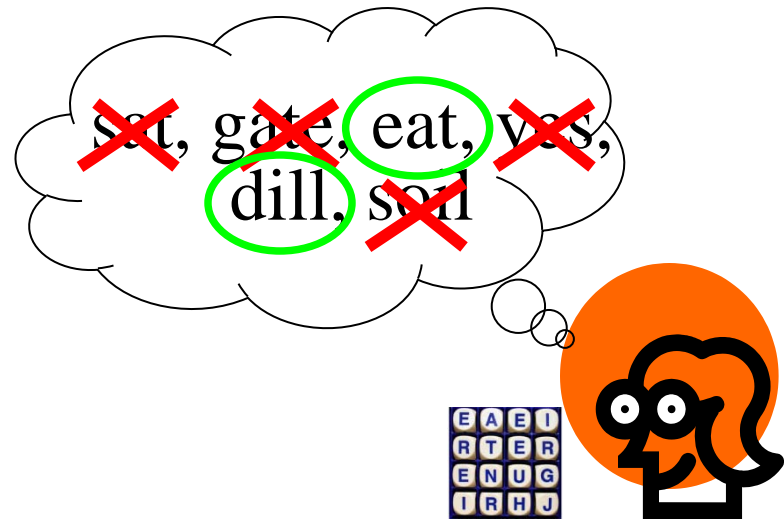
Trial 2: tail, ate, son

Participant-Generated:

Trial 1: gate

Trial 2: cat

Generate-New		
Correct	Self-Plagiarism	Partner-Plagiarism



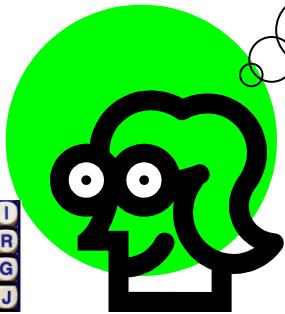
⁵ Landau & Marsh (1997)

Different Decision Processes in Different Tasks⁵

Recall-Own Task
(Source Memory)

Who-
Generated-
What?

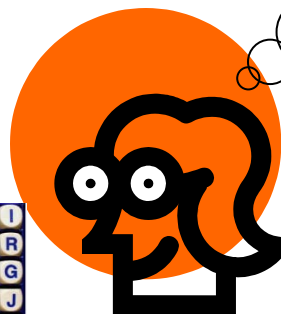
E	A	E	I
R	T	E	R
E	N	U	G
I	R	H	J



Generate-New Task
(Item Memory)

Familiar vs.
Novel?

E	A	E	I
R	T	E	R
E	N	U	G
I	R	H	J



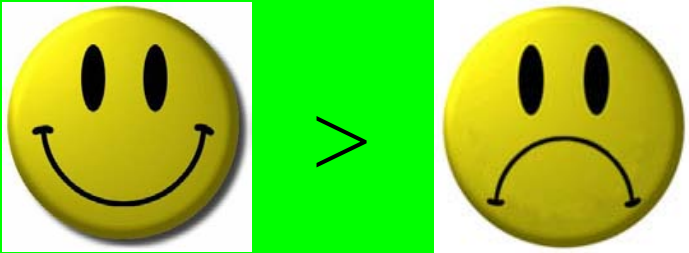
⁵ Landau & Marsh (1997)



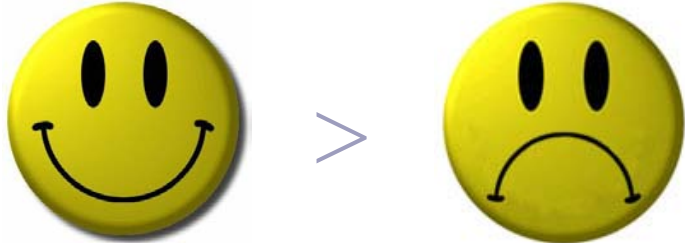
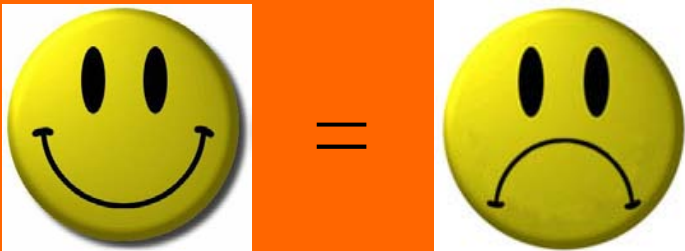
Experiment 1: Predictions

Task	Inadvertent Plagiarism
-------------	-------------------------------

Experiment 1: Predictions

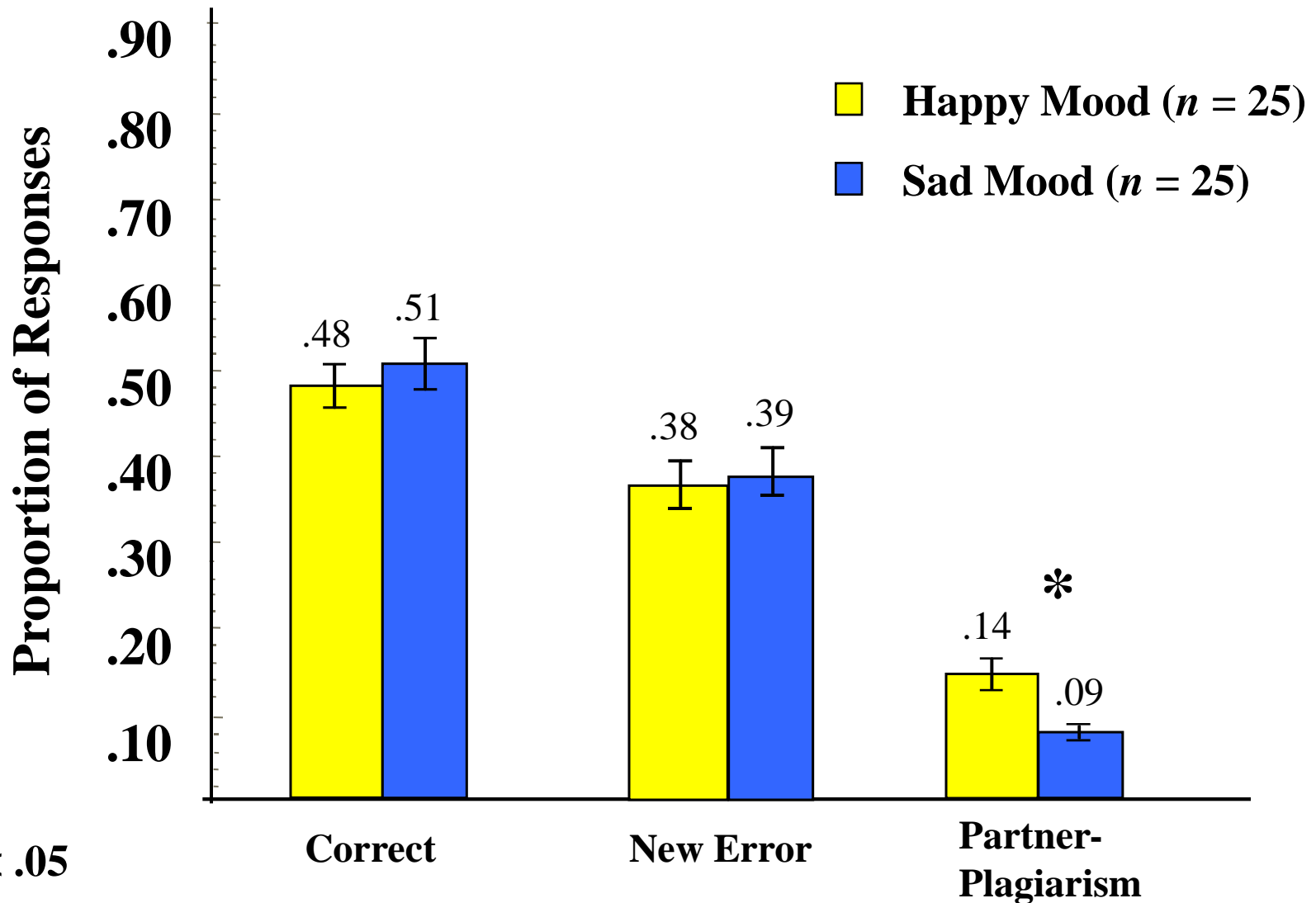
Task	Inadvertent Plagiarism
Recall-Own	

Experiment 1: Predictions

Task	Inadvertent Plagiarism
Recall-Own	
Generate-New	

Experiment 1:

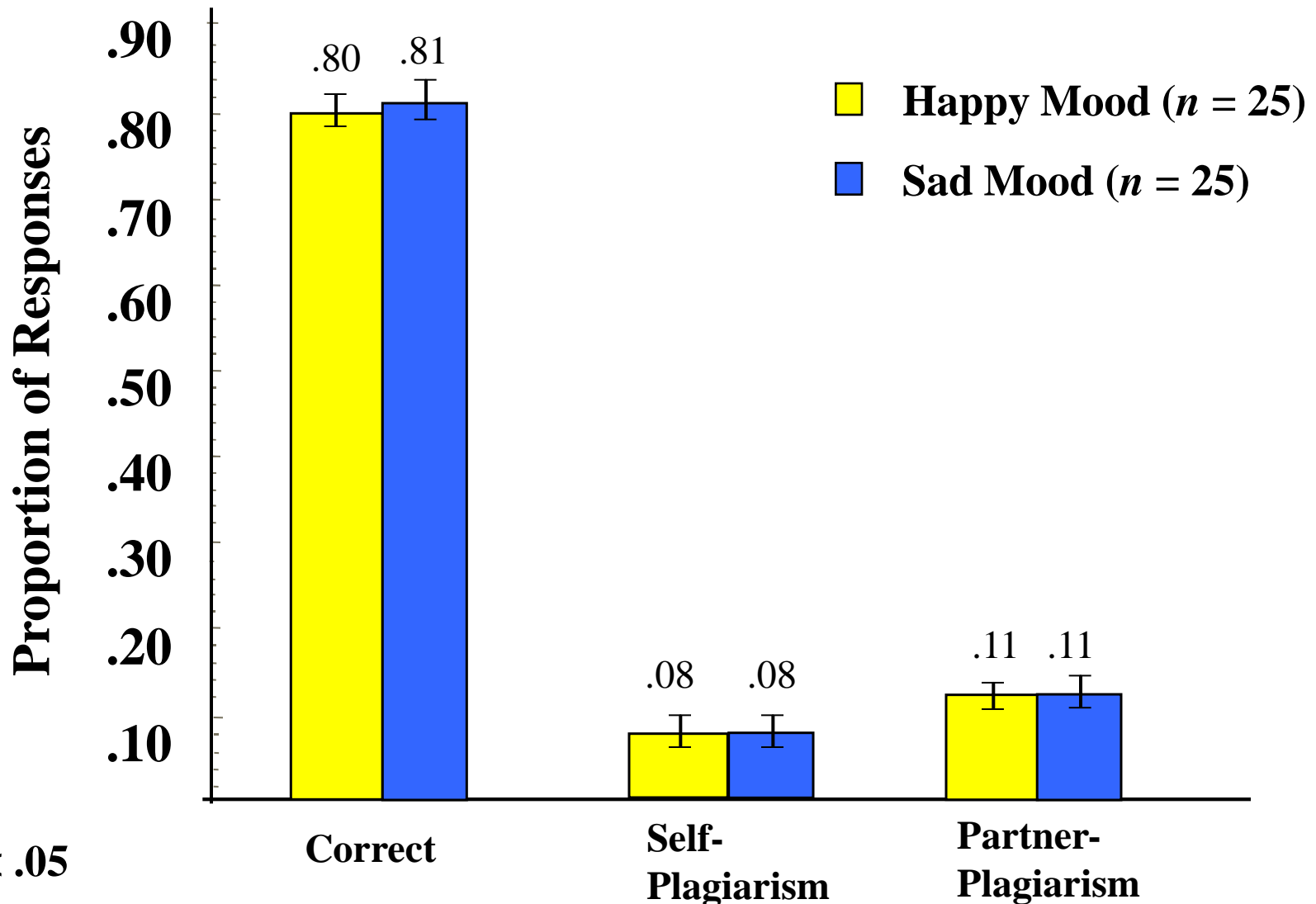
Recall-Own Task Results



* $p < .05$

Experiment 1:

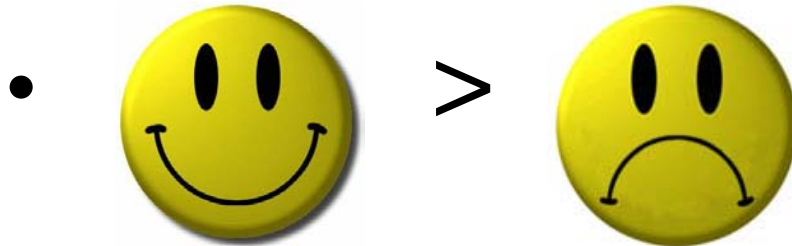
Generate-New Task Results



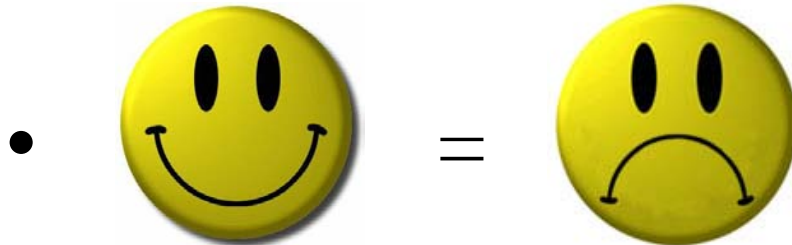
* $p < .05$

Experiment 1: Results

- Mood affects source memory processes
 - Source Memory Errors (Who-Generated-What?)



- Item Memory Errors (Familiar vs. Novel?)



Experiment 1: Mood Data

Mood During Story Writing

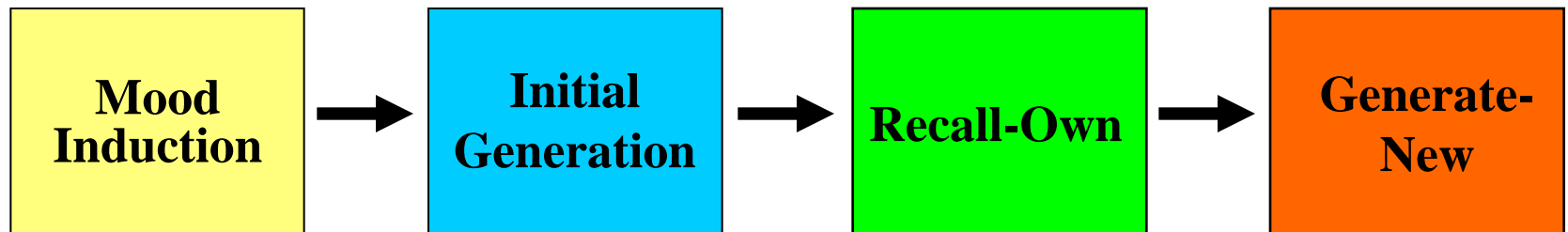
Happy	Sad
5.26	2.88

Mood at End

Happy	Sad
4.22	4.31

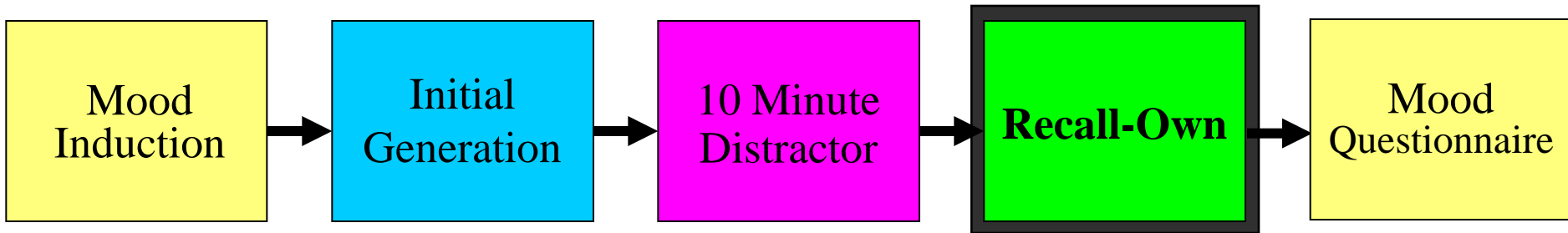
Experiment 1: Question

- What if null effect in Generate-New phase was because induced mood had “worn off?”

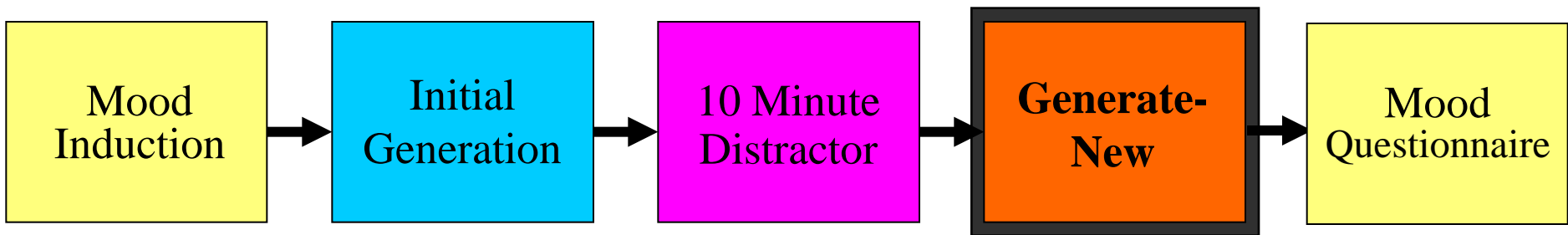


Experiment 2: Procedure

Recall-Own Condition:







Generate-New Condition:







Experiment 2: Predictions

Mood Affects Source Memory:

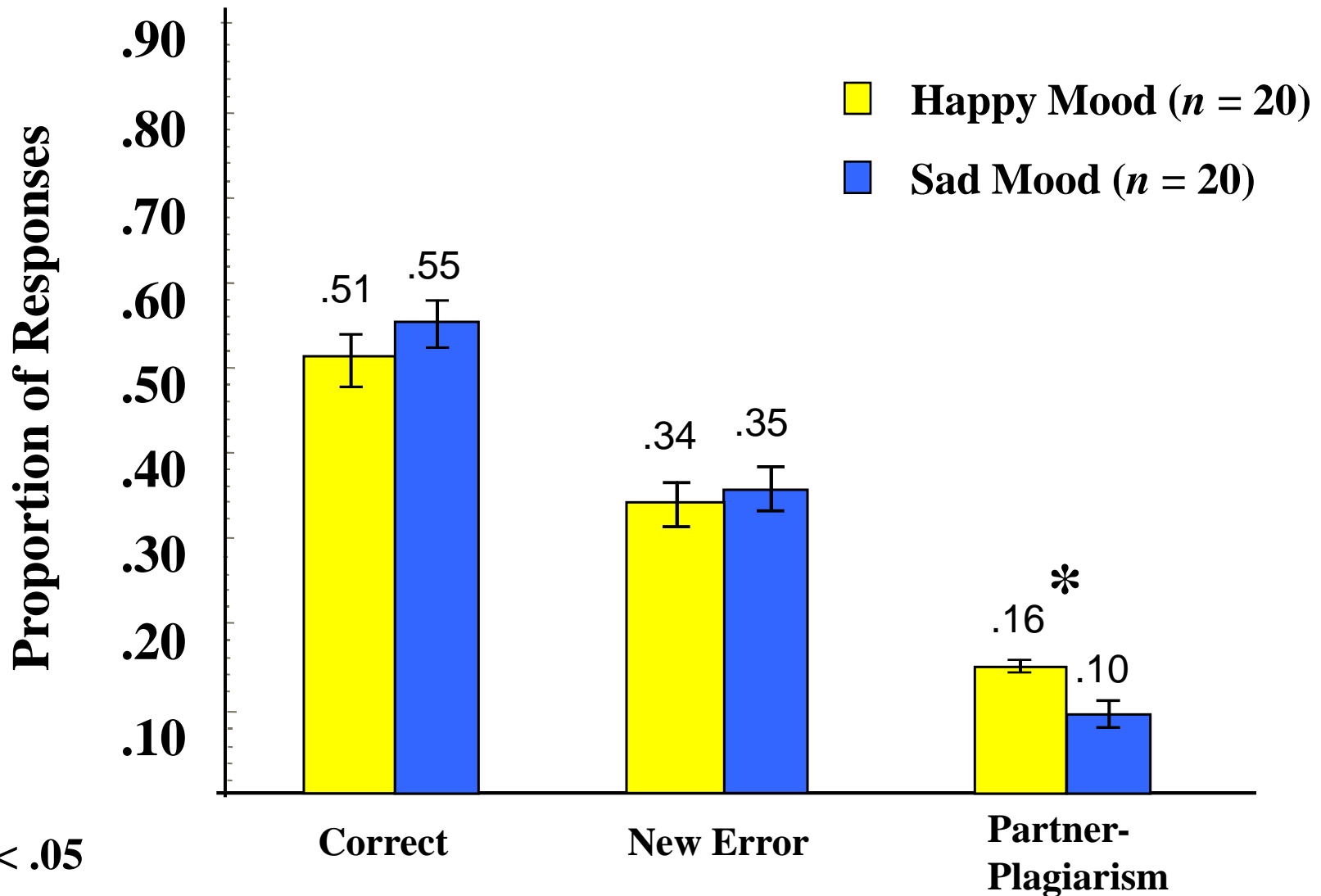
Task	Inadvertent Plagiarism
Recall-Own	 > 
Generate-New	 = 

Mood Affects Item and Source Memory:

Task	Inadvertent Plagiarism
Recall-Own	 > 
Generate-New	 > 

Experiment 2:

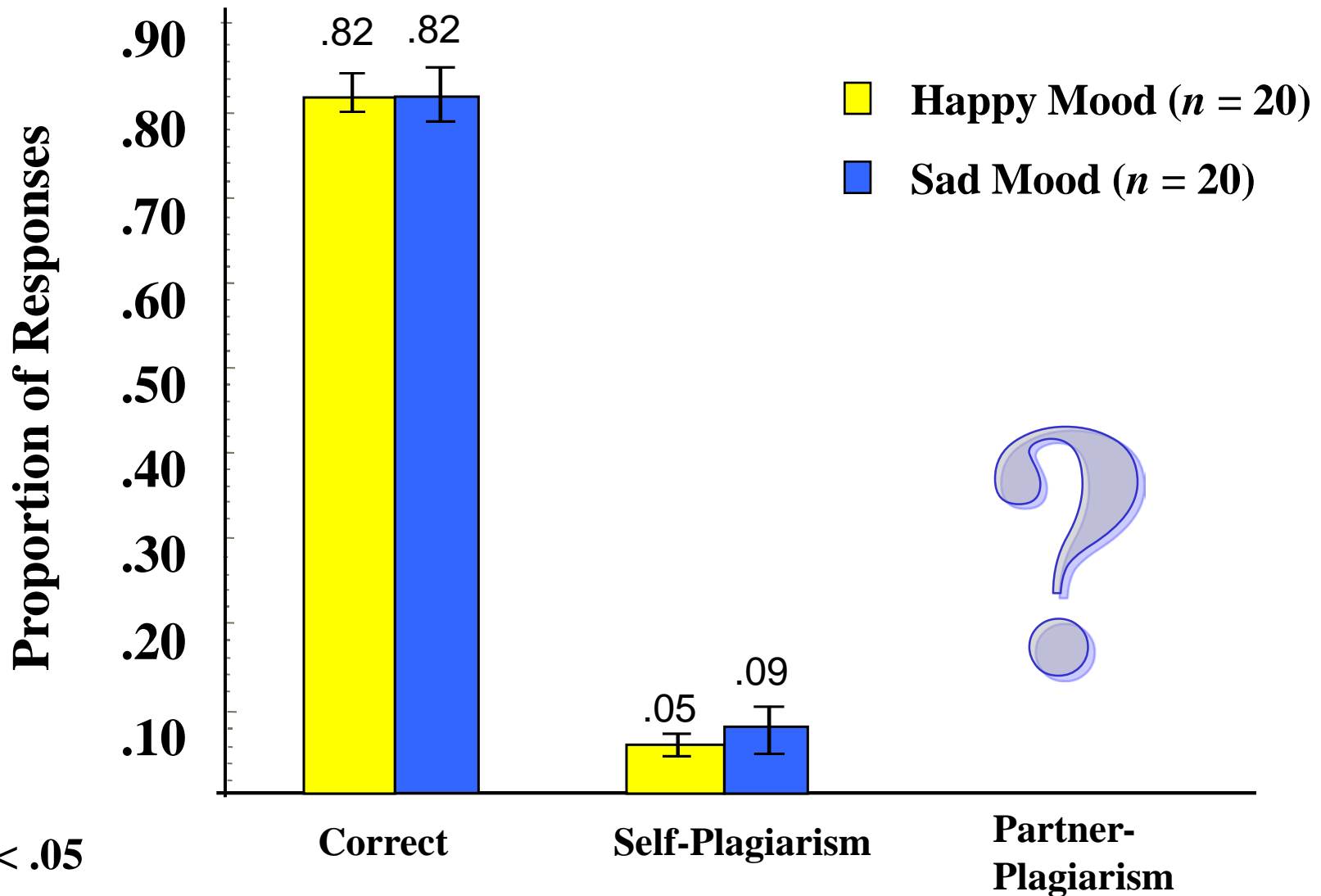
Recall-Own Task Results



* $p < .05$

Experiment 2:

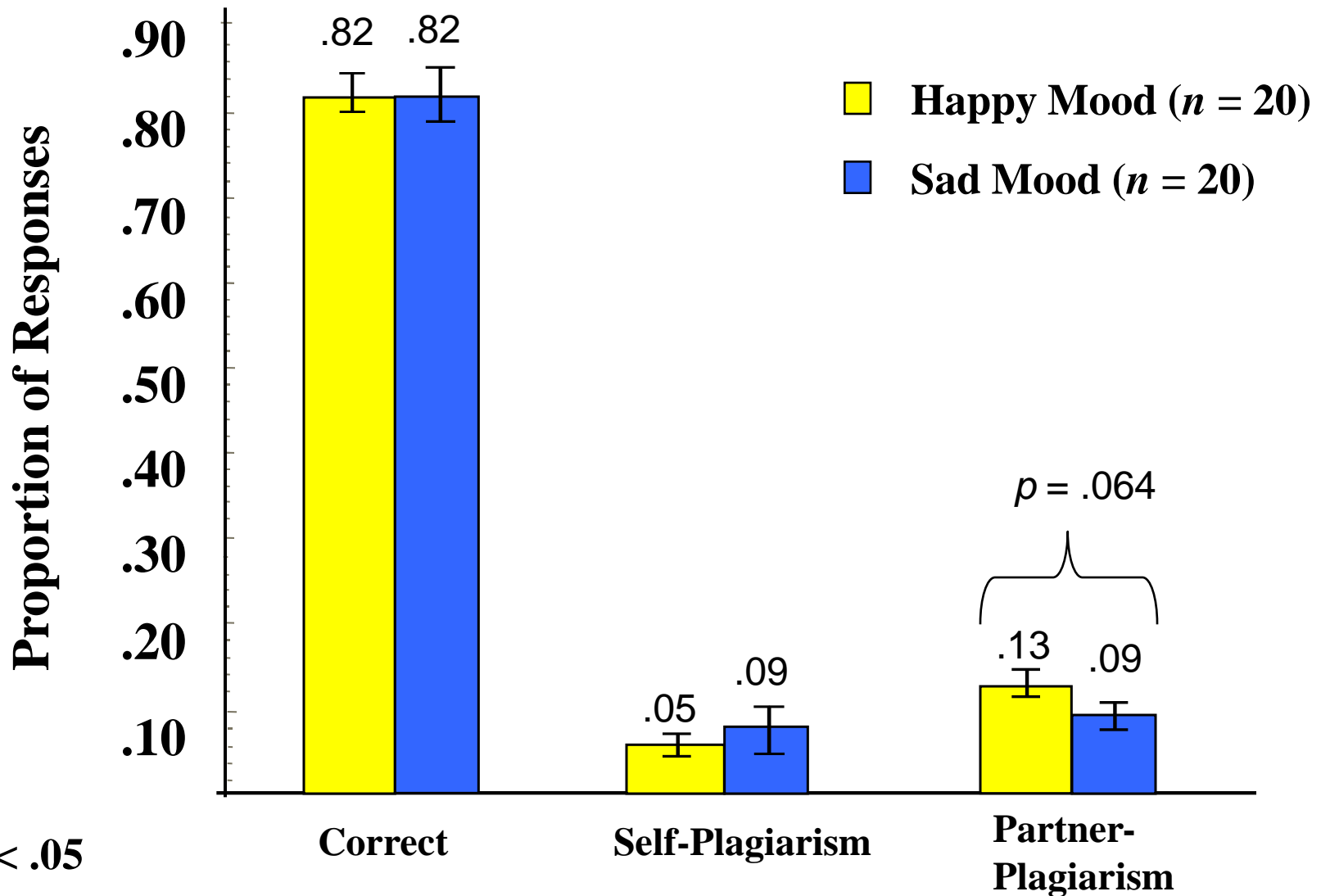
Generate-New Task Results



* $p < .05$

Experiment 2:

Generate-New Task Results



Experiment 2: Mood Data

Recall-Own

Generate-New

Mood During Story Writing

Happy	Sad
4.75	3.20

Happy	Sad
4.75	3.15

Experiment 2: Mood Data

Recall-Own

Generate-New

Mood During Story Writing

Happy	Sad
4.75	3.20

Happy	Sad
4.75	3.15

Mood at End

Happy	Sad
4.60	4.05

Happy	Sad
4.15	3.60



Experiment 2: Conclusions

- Mood affects source memory and *may* affect item memory processes

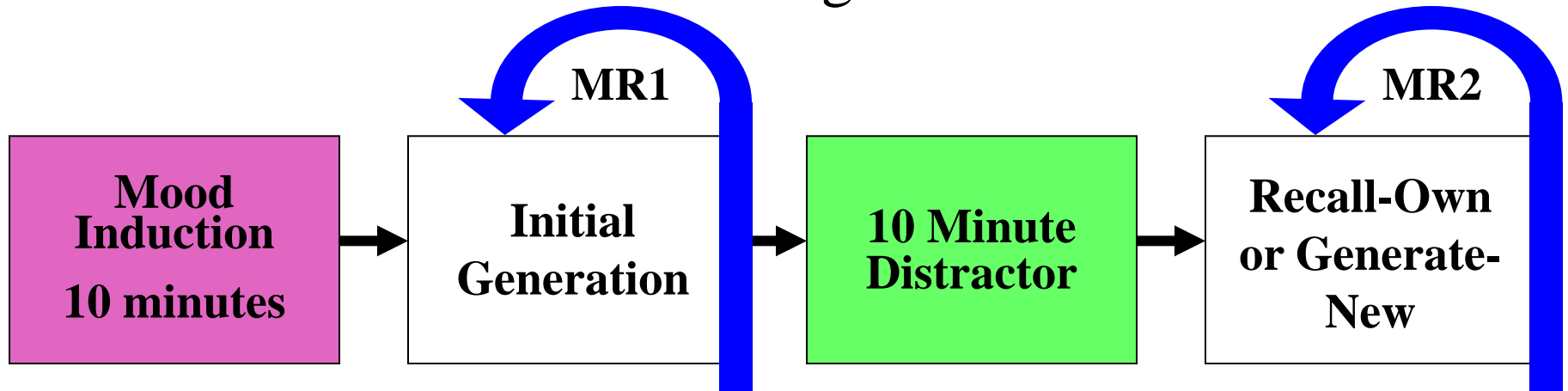


Experiment 3

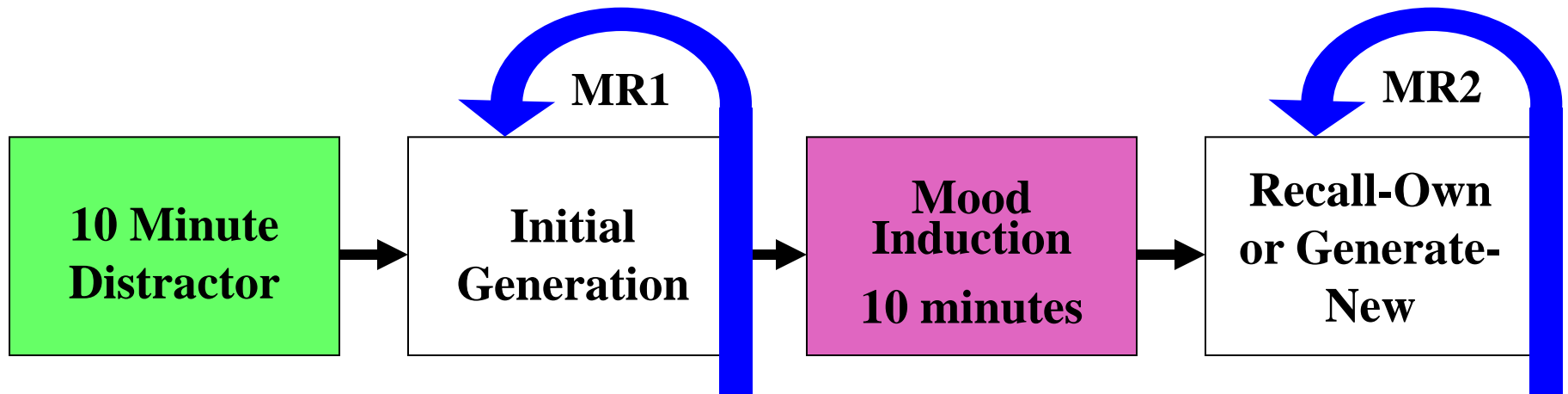
Does effect of mood on
inadvertent plagiarism occur
at encoding or retrieval?

Experiment 3: Procedure

Before Encoding Condition



Before Retrieval Condition



Experiment 3: Predictions

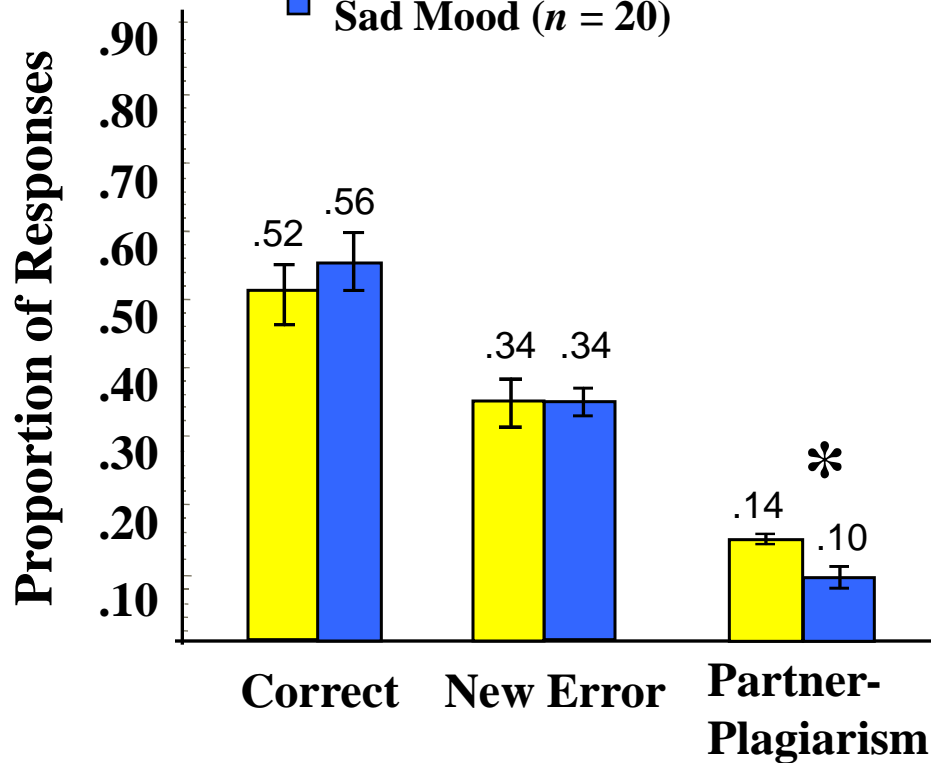
If...	Predicted Effect on Inadvertent Plagiarism
Encoding	Encoding: 😊 > 😞 Retrieval: 😊 = 😞
Retrieval	Encoding: 😊 = 😞 Retrieval: 😊 > 😞
Encoding & Retrieval	Encoding: 😊 > 😞 Retrieval: 😊 > 😞

Experiment 3:

Recall-Own Task Results

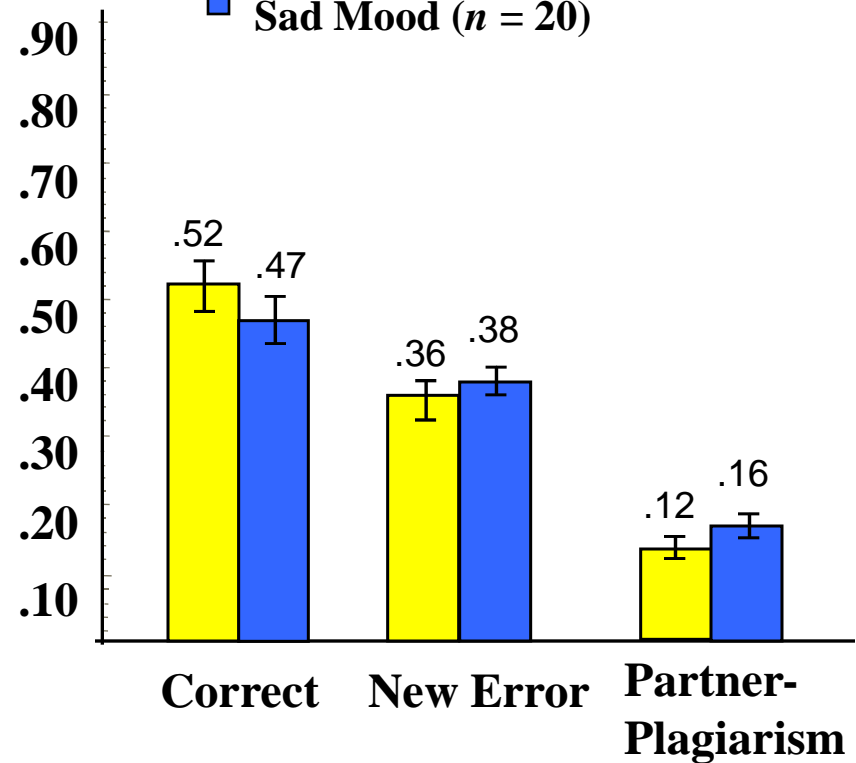
Before Encoding

■ Happy Mood ($n = 20$)
■ Sad Mood ($n = 20$)



Before Retrieval

■ Happy Mood ($n = 20$)
■ Sad Mood ($n = 20$)



* $p < .05$

Experiment 3: Mood Data

Before Encoding

Before Retrieval

MR #1

Happy	Sad
4.85	4.10

Happy	Sad
4.65	4.60

MR #2

Happy	Sad
3.68	4.20

Happy	Sad
4.40	3.90

Mood at End

Happy	Sad
4.42	4.20

Happy	Sad
4.65	4.35

Recall-Own Task

Experiment 3:

Recall-Own Task Results

If...	Predicted Effect on Inadvertent Plagiarism
Encoding	Encoding: 😊 > 😞 Retrieval: 😊 = 😞
Retrieval	Encoding: 😊 = 😞 Retrieval: 😊 > 😞
Encoding & Retrieval	Encoding: 😊 > 😞 Retrieval: 😊 > 😞

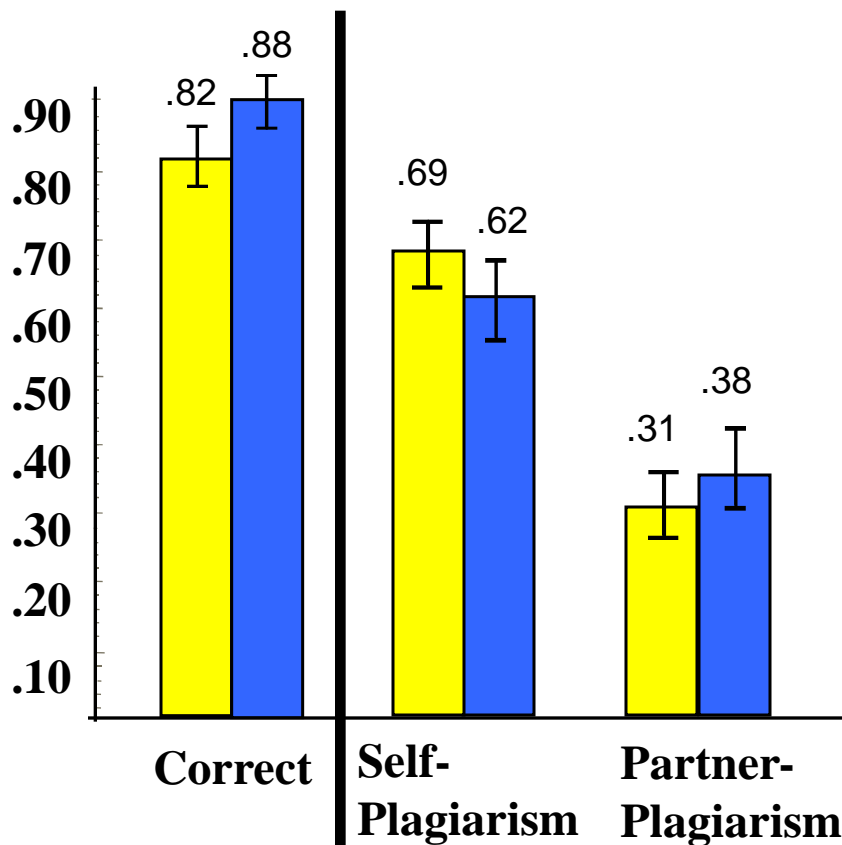
Experiment 3:

Generate-New Task Results

Before Encoding

■ Happy Mood ($n = 20$)

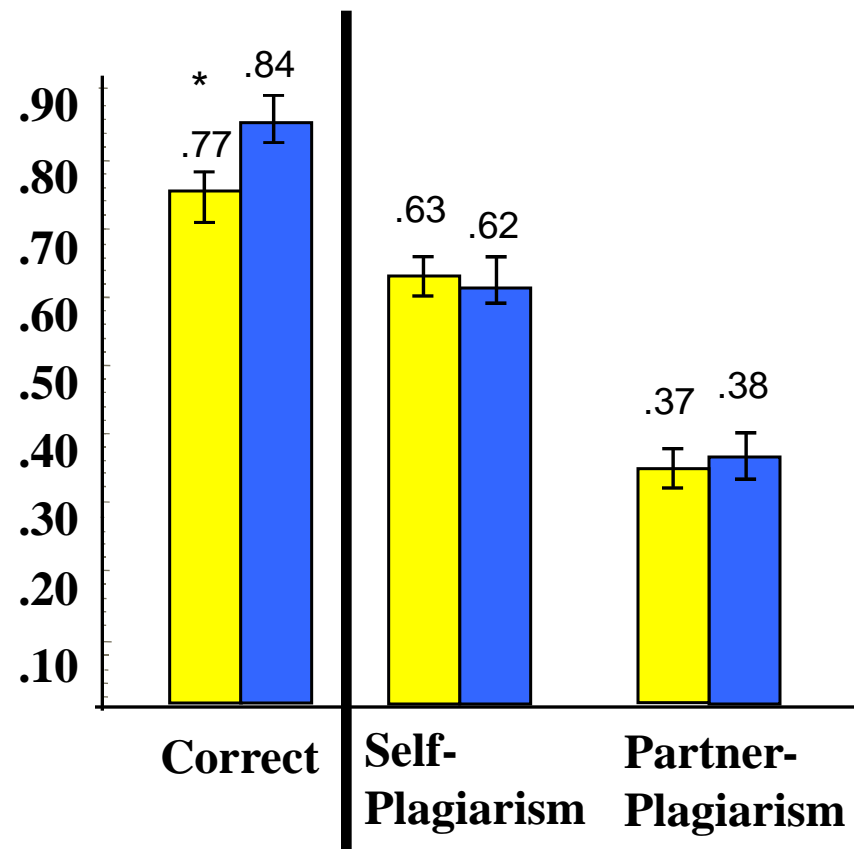
■ Sad Mood ($n = 20$)



Before Retrieval

■ Happy Mood ($n = 20$)

■ Sad Mood ($n = 20$)



* $p < .05$

Experiment 3: Mood Data

Before Encoding

Before Retrieval

MR #1

Happy	Sad
4.60	4.00

Happy	Sad
4.30	5.20

MR #2

Happy	Sad
4.20	3.85

Happy	Sad
4.25	4.35

Mood at End

Happy	Sad
4.65	4.10

Happy	Sad
4.80	5.05

Generate-New Task



Experiment 3: Conclusions

Sad mood decreased
source memory errors
at encoding.

Mood had no effect on type of
item memory errors made.

Summary of Experiments

■ Experiment 1

- **Question:** Does mood affect source memory in inadvertent plagiarism paradigm?
- **Answer:** Yes.

■ Experiment 2

- **Question:** Is the effect of mood in Recall-Own but not Generate-New due to “wearing off” of mood?
- **Answer:** Probably Not.

Summary of Experiments

■ Experiment 3

- **Question:** Does mood effect in Recall-Own occur at encoding or retrieval (or both)?
- **Answer:** Encoding.
- **Question:** What's going on with Generate-New?
- **Answers:** Sad mood enhances item memory accuracy.
No effect of mood on inadvertent plagiarism.



Ongoing & Future Research

- Subjective Experience
- Resolve Inconsistency
- Reality Monitoring

Many Thanks To...

Faculty Collaborators:

- ❖ Dr. Chad Dodson
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- ❖ Dr. Brian Nosek

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- ❖ Jonathan Emmons
- ❖ Debby Kermer

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- ❖ Cari Day
- ❖ Laura Higginbotham
- ❖ Julie Kenney
- ❖ Amanda Miller
- ❖ Michael Patrizio
- ❖ Caitlin Santucci
- ❖ Erin Sullivan

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**BUTLER
UNIVERSITY**

Gettysburg College Homecoming
Psychology Symposium
16 October 2009