TEAM-BASED LEARNING IN COGNITIVE PSYCHOLOGY (PSY6008)

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COGNITIVE PSYCHOLOGY IN MSOCSC(PSY)

- A conversion degree in psychology
- 46 students with very diverse background
- Full time and part time
- Learning Outcomes of the course:

$CILO_1$ DESCRIBE THE MAJOR CONCEPTS, FINDINGS, AND THEORIES IN COGNITIVE PSYCHOLOGY;

$CILO_2$ CRITICALLY COMPARE AND CONTRAST DIFFERENT THEORIES IN COGNITIVE PSYCHOLOGY;

$CILO_3$ ACQUIRE RELEVANT TECHNIQUES AND EXPERIENCES IN CONDUCTING RESEARCH IN COGNITIVE PSYCHOLOGY;

$CILO_4$ DEVELOP CRITICAL THINKING SKILLS TO EVALUATE EMPIRICAL EVIDENCE IN COGNITIVE PSYCHOLOGY;

$CILO_5$ APPLY THE KNOWLEDGE OF COGNITIVE PSYCHOLOGY TO DAILY LIFE AND TEACHING PRACTICES.

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TBL BASICS IN CP

- 8 instructional cycles on 8 topics: Perception, Attention, Memory, Language, Thinking
- 20% of final grade
- 12% iRAT, 4% tRAT and 4% peer evaluation
- All iRAT in MCQs format, some AE in mcqs and some are open ended questions
- Use of IF-AT cards

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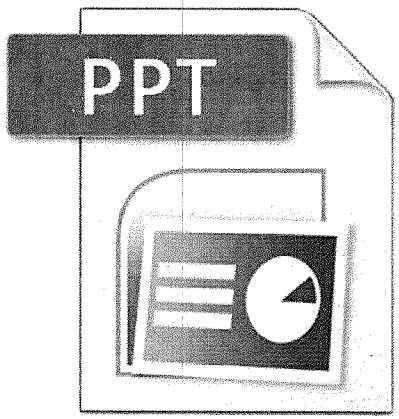
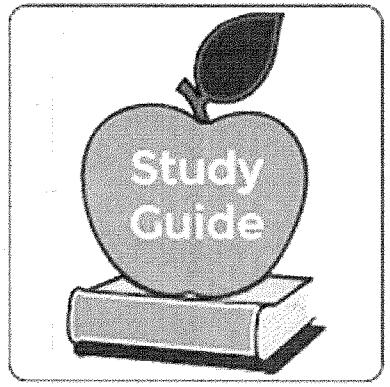
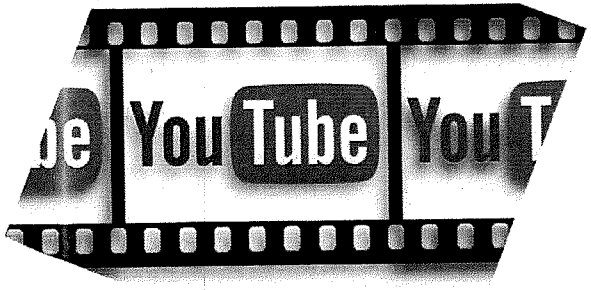
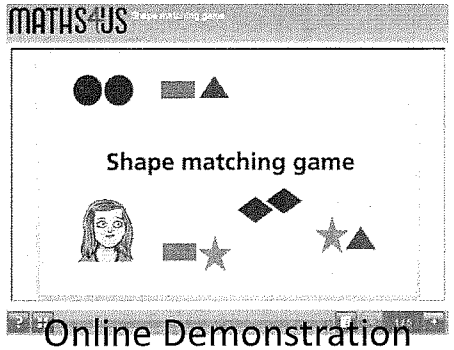
PRE-READINGS BEFORE CLASS









Online Demonstration and Game

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INDIVIDUAL READINESS ASSURANCE TEST (IRAT)

- MCQs
- Foundational knowledge
- No feedback, no marks until later
- 62% of accuracy over the 8 modules of all students
- From item bank; selection of MCQs – factual or application?

APPENDIX 3: A Sample of Individual Readiness Assurance Test (iRAT)

PSY6008 Cognitive Psychology
Lecture 2 Perception
Team-based Learning - iRAT

Name: _____ Score:_____

DIRECTIONS: This short test will help test your understanding of assigned pre-readings. You have 10 minutes to complete this test individually. Please circle the best answers to the following questions.

1. A bottom-up process is involved in fixating on an area of a scene that_____.
A. carries meaning for the observer.
B. fits with the observer's interests.
C. is familiar.
D. has high stimulus salience.

2. According to the likelihood principle, we tend to perceive objects that are _____ likely to have caused the pattern of stimuli we have received and this is typically the result of_____ inferences.
A. most; unconscious
B. most; conscious
C. least; unconscious
D. least; conscious

3. Which statement best summarizes the focus of the Gestalt psychologists?
A. We must understand the basic components of perception.
B. We want to understand how the sum of parts adds up to create perception.
C. We need to identify the number of basic features needed for object recognition.
D. All of the above.

4. Which of the following is a better example of an effect of top-down processing?
A. Seeing a flash of lighting in a thunderstorm
B. Speech segmentation
C. The response of a feature detector
D. Perceiving all of the birds in a flock as belonging together

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TEAM READINESS ASSURANCE TEST (TRAT)

IMMEDIATE FEEDBACK ASSESSMENT TECHNIQUE (IF AT®)
Name Team #3 Test # 2
Subject Total
SCRATCH OFF COVERING TO EXPOSE ANSWER

	A	B	C	D	Score	
1.				★	4	
2.		★			2	
3.	★				4	
4.		★			1	
5.						
6.						
7.						
8.						
9.						
10.						

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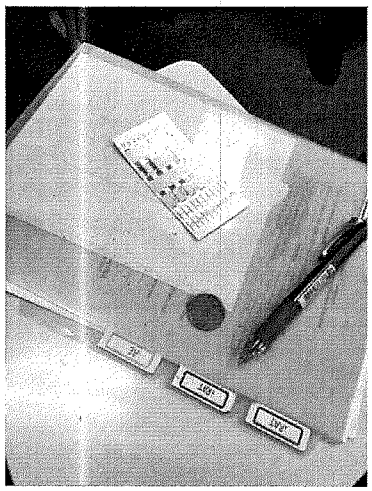
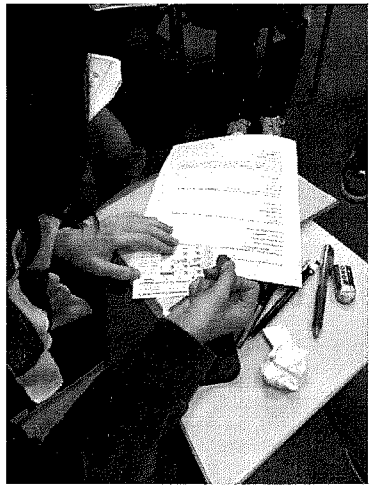
Immediate feedback

Marks count for grades

Ability to answer again if incorrect: Partial credit





First attempt: 10 points;

Second attempt: 5 points;

Third attempt: 2.5 points;

Fourth attempt: 0 point.

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APPEAL

- Rarely happened
- Stimulated deep thinking of the course content

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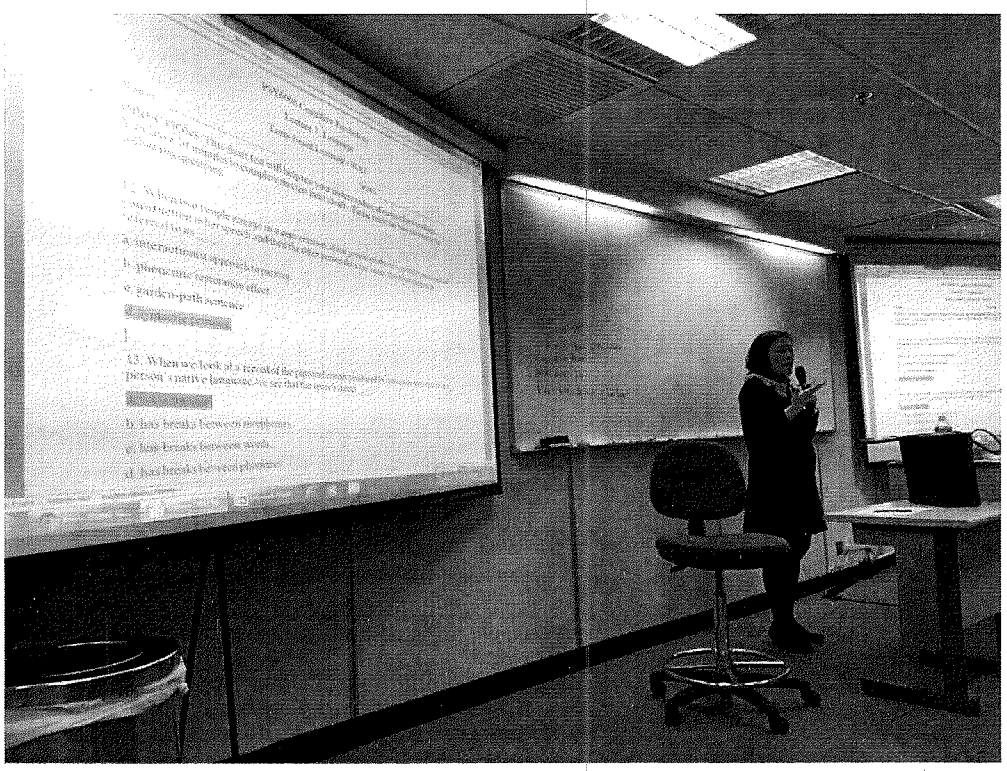
MINI-LECTURE

- Clarify common misunderstandings in test
- Ensure course content coverage



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APPLICATION EXERCISE

- Difficult to design
- Exercises need to engage students in real collaboration and discussion (how to involve everyone)
- Time management
- Tried out different format in the course, but the best format is not yet known.
- Specific choices are important; focusing students on specific concepts.

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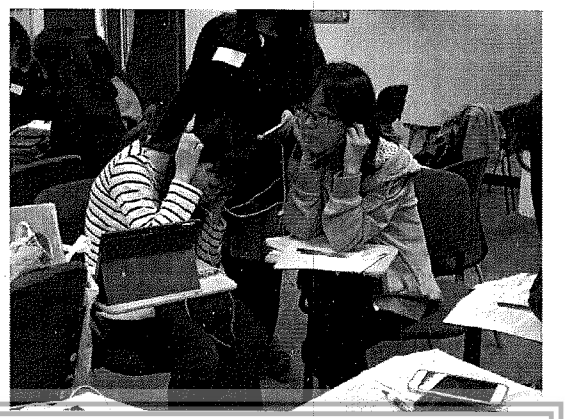
APPLICATION EXERCISE EXAMPLE

Specific choice

- COGNITIVE PSYCHOLOGY: ATTENTION (LECTURE 3)
- AE: Students carry out dichotic listening procedures and pool together findings. Then Students discuss which model of selective attention supports their findings. Justification should be provided.



Significant problem

Experimental Procedures of studying selective attention : Dichotic listening task (Cherry 195

- Focus your attention on the words in one ear, which we will call the *attended ear*, and as you hear the words, repeat them out loud.

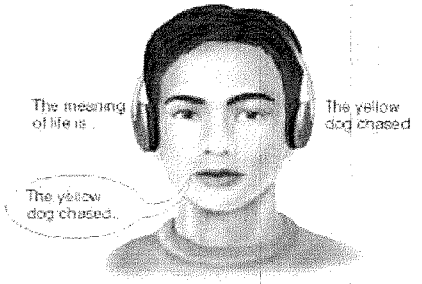


Figure 4.2 In the shadowing procedure, a person repeats out loud the words that have just been heard. This ensures that subjects are focusing their attention on the attended message. ©Cengage Learning

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Same problem & Simultanoulsy reporting

qiaoshen0623 1m

Application exercise: Dichotic listening task

Lecture 3: Attention

Group 1:

1. Distress, stress, school, achievement, pressure
2. Female
3. Cantonese
4. Mother language (Cantonese), high pitch.
5. Modern Psychology

Treisman's attenuation theory

Group 2:

1.Broadbent
2.chinese,meaning
3.female
4.treisman
5.jung,書店
6.英文，educational issu

Group 3:

Triesman's model of attenuation theory
It is very hard to ignore the language and meaning

Group 4:

1.how to improve student academic achivevment

2.female

3.Cantonese

4.It is SusanNa's voice.

5到書店去買心理學的書

Group 5:

Majority-Treisman's theory (intermediate).

Due to the familiarisation of physical characteristic (Susanna's voice). Language (Cantonese).

Group 7:

1. some sort of complete prose in English, Structrure of schools
2. female
3. Cantonese
4. Mother language and utterance of higher pitch, familiar voice, higher voice level, clarity in the utterance are more dominant.
5. Fraud

Group 6:

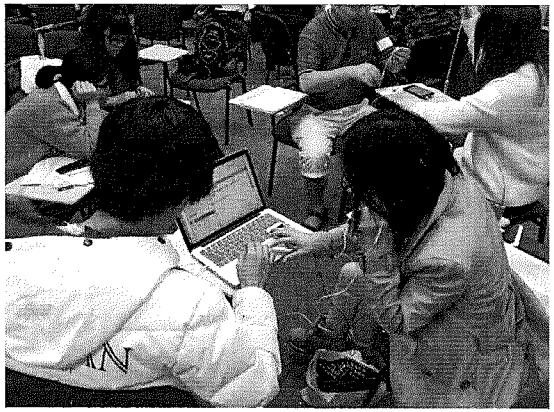
1. Increase accountability in school provide more incentives for principal and teachers. provide more flexibility.
2. Female
3. Cantonese
4. High Pitch, intonation有 抑揚頓挫, higher fluency
5. 當代著名心理學家 Freud, Carl Yung, Erickson, 在哪裡可以找到他們的著作？

書局主要有三類關於心理學的書：第一類： 眞正的心理學著作， 佛洛伊德，榮格等這些當代著名心理學家的著作

第二類： 偽心理學， 心靈雞湯類， 教人做人

第三類： 非科學類， 如輪迴轉世

three types of psychology related books can be find in bookstore: Freud, Yung, Erikson. Where can we find231`



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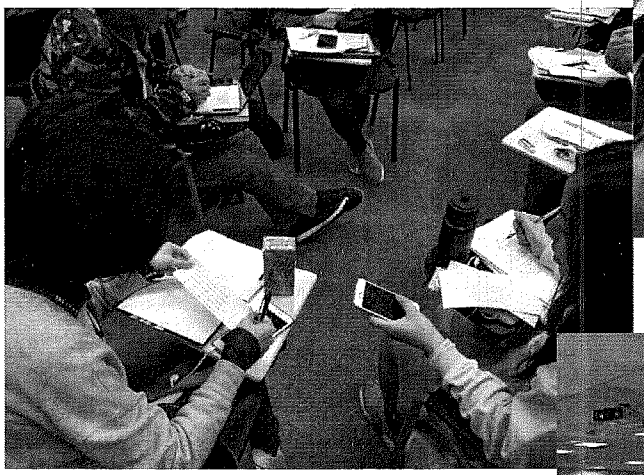
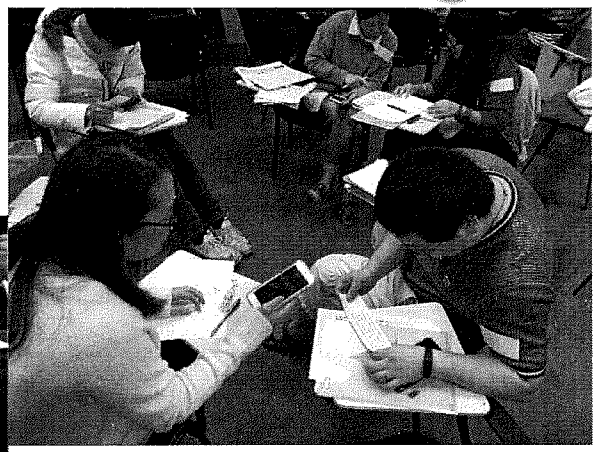
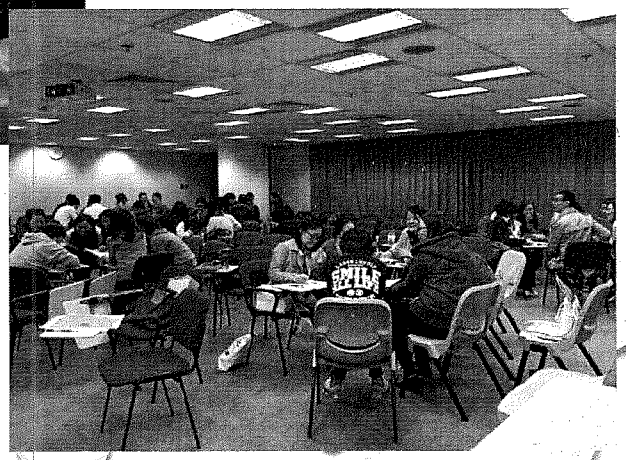
Cognitive Psychology in TBL Formats: AE examples

- Differentiating course concepts
- Real-life problem solving
- Cognitive experiment
- Scenario-based learning
- Journal reading on expeirmentation







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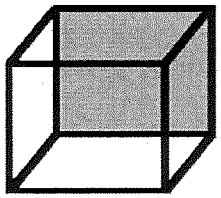
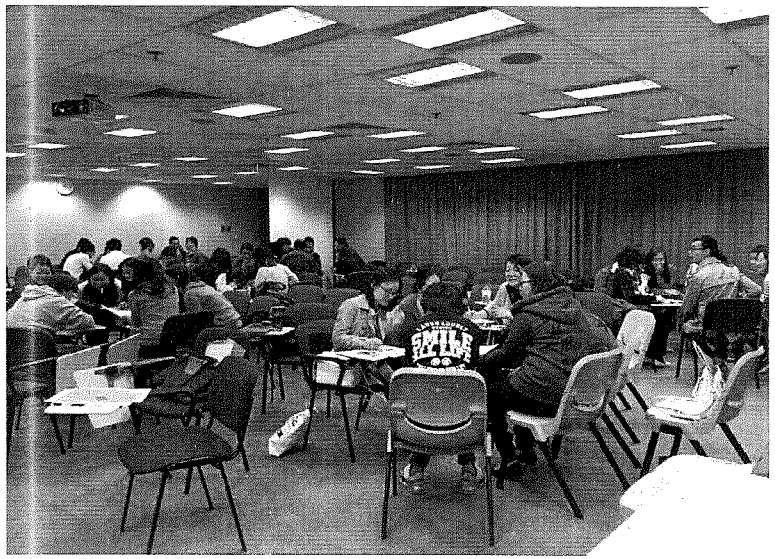
DIFFERENTIATING COURSE CONCEPTS

Please determine whether each of the following cases is an example of bottom-up or top-down processing:

1. Glancing over to see a spider crawling across his shoulder, Andrew screamed. *Bottom-up / Top-down*

2. The following figure (The Necker Cube) results in two perceptions. *Bottom-up / Top-down*





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APPLYING COURSE CONTENT INTO EXPLAINING REAL-WORLD PROBLEMS

Lecture 4: Short term and working memory

Part I: Applying concepts and ideas to explain real world behavior

Imagine you are driving to a friend's new house. In your mind, you say the address repeatedly until you arrive. Once you arrive, you stop thinking about the address and start to think about buying a housewarming gift for your friend. To remember the address, you used a(n)_____ process in STM.

a. control
b. automatic
c. retrieval
d. registration

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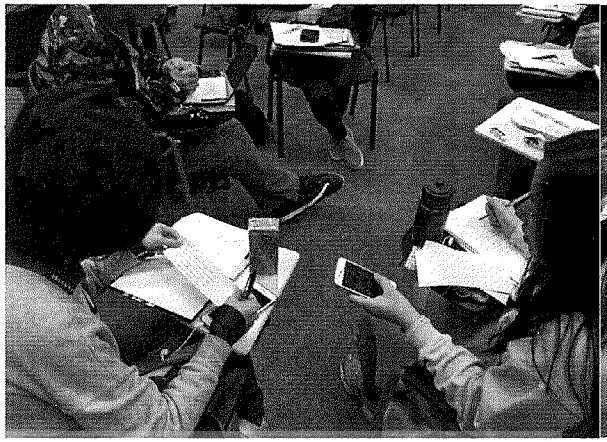
COGNITIVE EXPERIMENT

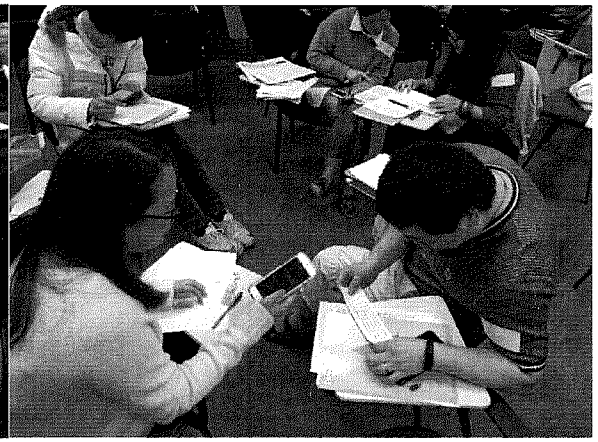
- Carry out cognitive psychology procedures:

one student serve as experimenter and one as participant

e.g. Lecture 4: Short term and working memory

Memory demonstration





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Part II: Memory Demonstrations

Work in pairs in this exercise, one as experimenter and one as participant. Complete the activities listed in the left column and answer the questions in the right column of the table below. Swap your role when one completes all the activities. You have 10 mins for the activities and 10 mins for discussing the questions in the right column in your group.

Activity and Response	***Questions***
Activity 1	Which component in memory was this testing?
Please read these instructions to your participant...	*Visual Spatial Sketchpad*
It may help you to close your eyes for this task. How many windows do you have in your house?	Which model is it included in?
	Baddeley's revised working memory model
Response: _____	
Activity 2	Which component in memory was this testing? What processes are involved in this activity?
Please ask your participant to do the following two tasks at the same time...	
• Study a list of words for 20 seconds (shown on p.4)	*Phonological loop/ articulatory suppression or articulatory processes.*
• Repeat their name and address to themselves	Which model is it included in?
	Working memory
Activity 3	Which component in memory was this testing?
Please read these instructions to your participant...	*Visual STM*
'On the desk in front of you is a piece of paper which is turned down so that you cannot see the picture on it (see p.5). In a moment I am going to ask you to look at the picture for 20 seconds and then place it back on the desk so you cannot see it. You should then try to draw the picture from memory. This will happen 4 times. I will tell you when your 20 seconds is up!' Time them for 20 seconds with each trial.	Which model is it included in?
	Modal model

EXTRACTION FROM JOURNAL ARTICLES ON EXPERIMENTATION

- Read journal articles about cognitive experiments

e.g. Lecture 2: attention

Brady and Oliva (2008)

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Part II

One of the cognitive experiments conducted by Brady and Oliva (2008) is described in the following paragraphs. Please read the information about the experiment carefully and answer the question based on what you have learnt in preclass materials by choosing the best answer.

Some previous studies have asked participants to observe a sequence of shapes and are not told that the sequence consists of arrangements of four temporal triplets (e.g., groups of three shapes that always appear in the same order, as in the sequence ABCGHIDEFABCJKLDEF), and after a brief exposure to this stream, participants are able to reliably identify the triplet (e.g., ABC) as more familiar than foil sequences (e.g. AEI), despite the fact that they have seen all the individual shapes as equal number of times.

Today, experiments like these have used novel shapes to investigate this learning phenomenon. In the real world, however, the units over which learning must operate are considerably more information rich. Therefore, the present study investigates the learning of complex stimuli with which the participants have prior association.

In the study, 12 scene categories were used: bathroom, bedroom, bridge, building, coast, field, forest, kitchen, living room, mountain, street and waterfall. Each category consists of 120 different full color images. A stream of 1000 images was made in which triplet (e.g. ABC) were presented together with randomly chosen images. Repeat images were inserted into the stream such that sometimes either the first or the third image in a triplet repeated immediately (e.g. ABCCGHI or ABCGGHI).

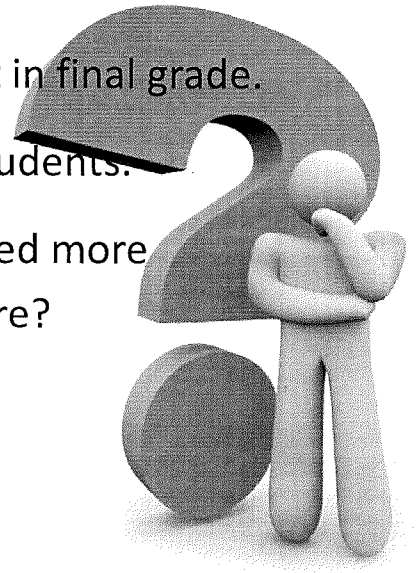
Participants watch a 20 mins sequence of 1000 images, presented one at a time for 300 ms each with a 700 ms interstimulus interval. During this sequence, the task was detect back-to-back repeats of the same image and to indicate repeats as quickly as possible by hitting the space bar. This cover task was intended to help prevent participants from becoming explicitly aware of the structure in the stream and also avoided having participants simply view the stream passively. Note that they never informed that there was any structure in the stream of images.

Following this study period, observers were asked if they had recognized any structure in the stream and then were given a surprise forced-choice familiarity test.

Results indicated that participants on average detected 91% of the repetitions (SD=5%) and committing between 1-5 false alarms. No participants reported explicitly noticing that study stream had any structure. Performance on the familiarity test indicated that triplets were successfully discriminated from foils (86.6% of the test sequence chosen were triplets and 13.4 were foils, statistically significant).

OVERALL REFLECTION

- Appreciated students' effort in preparation before coming to class! Self-regulated learning!
- tRAT – favorite component as perceived by students
- Certain mark given to each activity is crucial. AE should carry some weight in final grade.
- Minimize time in lecturing; more enjoyable lesson for both teacher and students.
- TBL in CP was welcome by high achieving students; weaker students wanted more support/lecture/explanation. How to support weaker students in the future?



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