

THE EFFECT OF CELL PHONES ON LEARNING

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Introduction

- ▣ Cell phones can be a major distraction in the world today
- ▣ Distract at work, in classrooms, while driving, simply while cleaning the house, etc.
- ▣ One may miss a note in class due to cell phone distraction, or even harm/kill oneself or another in an accident due to distraction
- ▣ Serious problem in society today

Introduction Article 1

Interference of Cellular Phone Conversations with Visuomotor Tasks: An ERP Study

- Cell phones increase reaction time
- Studied the reaction time in 3 conditions (no phone, hands free, and phone in hand)
- 2 different cell phone conversations (1 business and 1 regarding the experiment)
- Participants watched a computer screen with 2 visual stimuli
 - Yellow sun (target) and red circle (distractor)
 - Target appeared with a probability of 0.2 and the distractor 0.8
 - Participants had to click the mouse when they saw the target
 - Speed and accuracy was examined in the 3 conditions
 - Motor retention times and number of errors measured

Results

- ✓ Reaction times increased from 348 +/- 80 ms (control) to 409 +/- 110 ms (hands free) to 418 +/- 110 ms (phone in hand)
- ✓ Significant effect on the slowed negativity in both hands free and phone in hand compared to control

Use of cell phones linked with a delayed reaction time

- Decrease in sensory inputs
- Less preparedness to respond with a motor act

Introduction Article 2

Effects of Classroom Cell Phone use on Expected and Actual learning

- ▣ Used a repeated measures design, stimulated classroom presentation, measured performance with a 10-item quiz
- ▣ Hypothesis 1- The anticipated learning decrease of test scores for students would be lower based on the frequency of cell phone use
- ▣ Hypothesis 2- Students would have higher scores after watching the presentation in the non-texting group than the texting group.
- ▣ IV- texting/non texting
- ▣ DV-number of correct answers/test scores
- ▣ Results- All students believed that their test scores would decline with cell phone use; however those that defined themselves as avid users perceived their test scores as not dropping as much as those that were infrequent texters/cell phone users.
- ▣ Study 2- Scores were significantly lower when students texted than when they did not.

Introduction Article 3

Texting as a Distraction to Learning in College Students

- Experiment involved prerecorded lecture, multiple choice quiz, survey testing actions/abilities/attitudes of texter's
- Hypothesis 1: Students text messaging during a lecture would perform worse on a lecture quiz than those who were not text messaging.
- Hypothesis 2: For the texting group, perceived distraction and texting ability will moderate the effect of texting on quiz performance
- IV: text message/no text messaging DV: # correct answers on lecture quiz
- Results:
 - Hypothesis 1 supported: Text messaging group scored significantly lower in # of correct answers, with 58% correct. Control group = 71% correct
 - Moderating effects (perceived distraction, perceived texting ability, # of messages sent/received, age, gender) were considered, but no moderating effects were found
 - *Texting did cognitively distract students in the classroom*

Introduction to Our Experiment

- ▣ Experiment conducted to determine how cell phones affect learning
- ▣ Article read to participants/quiz given after
- ▣ Independent variable:
 - confederate using cell phone vs. no cell phone
- ▣ Dependent variable:
 - # of correct answered measured to observe learning

Our Participants

- ▣ 31 participants (16 males)
 - 18 – 24 years
- ▣ Participants gathered from UNCW library
- ▣ Mean age: 20.61
- ▣ Standard Deviation: 2.17

Sampling Procedure

- ▣ No random sampling

- ▣ Random assignment to conditions using a coin:
 - Heads: Experimental
 - ▣ Cell phones
 - Tails: Control
 - ▣ No cell phones

Materials

- ▣ Penny
- ▣ Pencils/pens
- ▣ Confederate with cell phone present/not
- ▣ Article on Kuru: an incurable, rare neurological disorder
- ▣ Quizzes we created
 - 10 multiple choice questions
 - Somewhat difficult
 - Attention needed

The Quiz

1. This disease was a serious issue during:

- a) 1910s-1920s
- b) 1930s-1940s
- c) 1970s-1980s
- d) 1950s-1960s

2. This disease was spread by...

- a) Open sores
- b) Eating brain tissue of deceased family members
- c) Contact with saliva
- d) A&B only
- e) All of the above

3. All of the following are examples of TSE's EXCEPT:

- a) Chondropblastoma
- b) prion diseases
- c) Creutzfeldt-Jakob disease
- d) mad cow disease

4. How long before an infected person shows symptoms?

- a) 5 days
- b) 4 weeks
- c) 2-4 months
- d) Years or decades

5. Kuru mainly affects what part of the brain?

- a) Cerebrum
- b) Cerebellum
- c) Medulla
- d) Pons

6. Kuru is the Fore word for:

- a) Forgetful
- b) Shiver
- c) Stutter
- d) Sickness

7. After the first appearance of symptoms, individuals with Kuru usually die after:

- a) 3-4 weeks
- b) 6-7 days days
- c) 12 weeks
- d) 6-12 months
- e) Within 3 years

8. All of the following are symptoms except:

- a) Gait
- b) Tremors
- c) Dementia
- d) Slurred speech
- e) Mood swings

9. Which of the following statements is false?

- a) There's no treatment
- b) Kuru can be treated with antibiotics
- c) Kuru cannot be controlled once an individual is infected
- d) Kuru will cause death in an infected individual

10. This disease was a result of what ritualistic practice?

- a) Scarification
- b) Cannibalism
- c) Impaling
- d) Self- flagellation

Procedures

- ▣ Asked to participate, consent received
- ▣ Taken to study room
 - ▣ Confederate, aka “other participant” was already seated
- ▣ Both informed to listen and try to avoid distraction due to quiz after
- ▣ Coin flipped
- ▣ Began reading article

Procedures Continued

- ▣ Experimental Confederate:
 - Cell phone high volume/vibrate, constant texts received/sent, mess with apps
- ▣ Control Confederate:
 - Sit still/listen quietly/no distraction
- ▣ Quiz given
 - Exp. Conf. still causing distraction
- ▣ Gender, age, condition, correct answers recorded

Results

- ▣ Levene's Test = not statistically significant

- ▣ T-test used to examine means
 - Significantly different: $t(29) = 3.592, P = .001$
 - Control group had more correct answers ($M = 6.43, SD = 1.089$) than experimental group ($M = 5.06, SD = 1.029$)

Discussion

- ▣ Results supported hypothesis (cell phone distraction would impair learning)
- ▣ Cell phone distraction = fewer correct answers
- ▣ No cell phone distraction = more correct answers
- ▣ No significant variation between gender in correct/incorrect answers
- ▣ Cell phones caused participants to retain less information
 - = fewer correct answers, less retained/learned

Discussion Continued

- ▣ Possible Limitations:
 - Small sample
 - Participants ONLY from Randall Library
 - Other factors that may have distracted other than cell phone present:
 - ▣ People passing by
 - ▣ Background noise
 - ▣ Speed article read
 - ▣ Amount of texts received/sent
 - Participant learning style not measured
 - ▣ Auditory, visual, hands-on

Discussion Continued

Article 1

- Cell phones decrease reaction times
- Less preparedness to respond with a motor act in the presence of cell phones

Article 2

- Texting does affect test scores negatively

Article 3

- Texting does cognitively distract students in a classroom setting
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- ▣ Further research: more diverse sample & sample taken from a location other than library

References

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