

# Task 11:

## Present your work

### Deliverables for this Task

The full, final version of your complete Research Paper, along with any extra materials.

The full, final version of your PowerPoint presentation of your study.

### Step by step

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# Overview

Now that you've done all the work, it's time to let people know about it. Research that no one knows about is research that no one can learn from – it's useless.

This Task focuses on presenting your work. There are two main ways that researchers present their work: presentations at conferences and published research articles. Presentations at conferences are usually done with PowerPoint slides that summarize the main points of your work while you explain it orally. Research articles are submitted to journals in a special format that is described in great detail in the *APA Publication Manual*.

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It's absolutely crucial to find the extra energy to do a *fantastic* job on the final products. Looks *do* count, so your presentations have to look fantastic.

## 1. Make a PowerPoint presentation

You've put very much effort into planning and executing your research. People will judge how good and/or how interesting your work is by the way that you present it. They won't know how much time you spent, how much you suffered, how careful you were about everything – they'll just see the final product.

The standard format for a conference presentation is 20 minutes to speak and 10 minutes to answer questions. You stand at the front of the room with a laptop and a projector and explain *why* it's important to study your topic, what you did, what results you found, and what they mean.

### *Steps to completion; steps to success*

You can find an online tutorial about how to make PowerPoint slides at: <http://www.electricteacher.com/tutorial3.htm> And there are many others on the Web, too: just google "powerpoint tutorial". If you want (and ask), I'll set aside part of a class to give you quickie tutorial.

Slide design. Use a professional Slide Design – do NOT do your own unless you have professional training as a graphic designer. There are many free designs available, both in PowerPoint itself and on the web. This will give your presentation a more professional appearance. Appearance isn't everything, but it counts and you need to make a good impression.

Be *very* careful not to overdo art, sounds, transitions, and animation. That means only use a little, tiny bit of them, if you use them at all.

You want to look good without distracting the audience or driving them nuts. Graphs and photos can be helpful. ClipArt is "fun" so it doesn't help you look like a serious professional.

Technically, you should only use your university's logo on your PowerPoint slides if you got IRB approval for your study. In fact, if you did not get IRB approval, you can only present your work in class!

How many slides? Standard presentations have a first slide with the title of the presentation, the author's name and institutional affiliation, and a last slide that says "Questions?" or "Thank you" or

both. They you'll need two or three slides to summarize each section of your paper: introduction/lit review, methods, results, discussion. That's a total of about 12 to 16 slides; more on this below. Nervous people really rush through their slides, so they need more slides to fill up the time :)

**Time.** In real life, at a conference you have a min of 20 minutes and a max of 25 minutes for your presentation, and you have to practice to get it precisely in this interval. If you finish early, it's embarrassing and people think that you don't have much to say. If you take too long, then there is no time for questions and people think that you're disorganized and unprepared. If you take way too long, you run the risk of the session chair telling you (in no uncertain terms) to shut up or actually interrupting you to move on to the next speaker. This is very embarrassing and makes you look really bad.

A session chair will usually warn you when your time is almost up, so you can budget your time better. In any case, you'll have to practice several times (preferably with an audience) to see how long your presentation takes. Remember that most people get nervous in front of a real audience and end up speaking a lot faster than during practice. It's very embarrassing to sign up for a 20 minute talk and finish after 10 minutes -- you look like a fool! (It's happened to me!)

**Content.** What goes on the slides? A useful rule of thumb is 4 – 6 items per slide: either phrases (like section headings) or *very short* sentences, like "Experts memorize a chess board in 15 s". Long sentences don't help: people start to pay more attention to the complicated slide than to your presentation. Be careful: too few items on a slide makes it look like you don't have a lot to say. But too many items on a slide makes it look like you're disorganized and can't tell what's important from what's not.

Remember, the slides are there **to help your listeners** understand what you are *saying* – they should contain *only the main points* that you want to make. The slides are also the outline for your talk, so that you don't forget the main points.

Also, **don't even think about taking along additional notes** to read from! The information on the slides has to be enough to jog your memory.

The precise number of slides is going to vary: if your method is more complex or your results are uninteresting, then you can use more or fewer slides. But try to keep your total less than 16 slides – that gives you 72 seconds per slide and double check to make sure that you have something to say about each slide for at least a minute!

## ***Sample PowerPoint presentation***

Here's a sample presentation for study. The left-hand column describes the outline of the presentation.

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1. Title slide. The title of the talk, your name, your affiliation; that's all. This slide introduces you and often the session chair does too, so you don't have to introduce yourself.

**Effects of Time Constraints and Television Exposure on Reading Comprehension**

Barbie Jones and Ken Smith  
San Jose State University



2. Introduction/Lit Review 1. Describe the problem and *why it's important*.

**Research Problem**

- Do time constraints and television exposure inhibit reading comprehension?
- Comprehension capabilities may be affected in
  - Workplace environments
  - Educational institutions
  - Study time



3. Introduction/Lit Review 2. Describe in general the process that you're studying.

**Reading comprehension**

- Four phases
  - Word recognition
  - Sentence building ("parsing")
  - Sentence interpretation
  - Knowledge integration



4. Introduction/Lit Review 3.  
Describe the effects of Factor 1 on your process.



## Effects of time constraints

- Severe time constraints
  - Higher anxiety; lower comprehension
- Mild time constraints
  - "Mindfulness" and motivation
  - Higher comprehension



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5. Introduction/Lit Review 4.  
Describe the effects of Factor 2 on your process.



## Effects of television

- Distracting stimuli generally
  - Global comprehension decreases in noisy environments
  - Not clear how each phase is affected
  - TV should have a stronger effect than non-linguistic noise



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6. Introduction/Lit Review 5.  
Describe the effects of the interaction on your process.



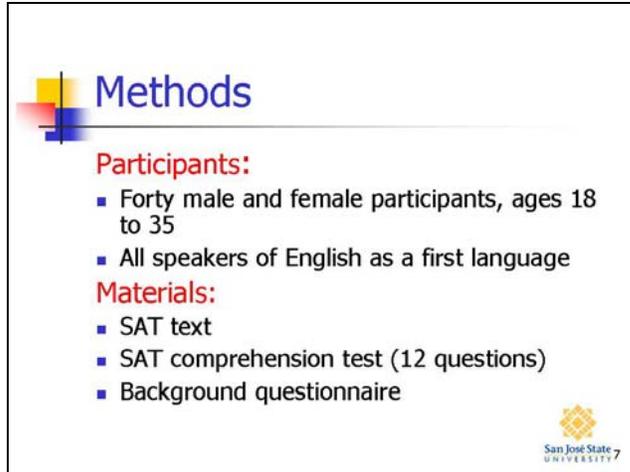
## Interactions

- Little research on the interactions
  - Time constraints and television should have additive effects
    - Both together should be worse than either alone



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7. Methods 1. Describe the participants and the materials.



**Methods**

**Participants:**

- Forty male and female participants, ages 18 to 35
- All speakers of English as a first language

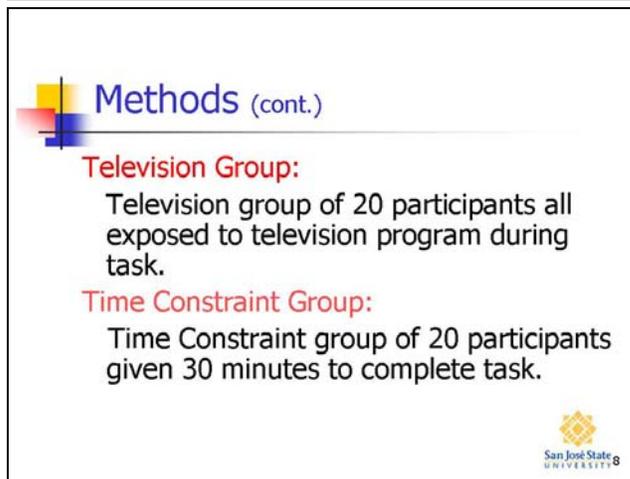
**Materials:**

- SAT text
- SAT comprehension test (12 questions)
- Background questionnaire

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8. Methods 2. Describe the tasks and the experimental design.

**In this example, the author forgot to describe the task.**



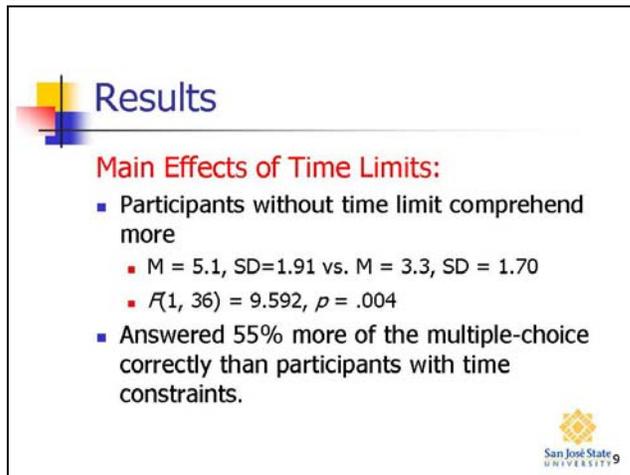
**Methods (cont.)**

**Television Group:**  
Television group of 20 participants all exposed to television program during task.

**Time Constraint Group:**  
Time Constraint group of 20 participants given 30 minutes to complete task.

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9. Results 1. Describe the effects of Factor 1 on your process.



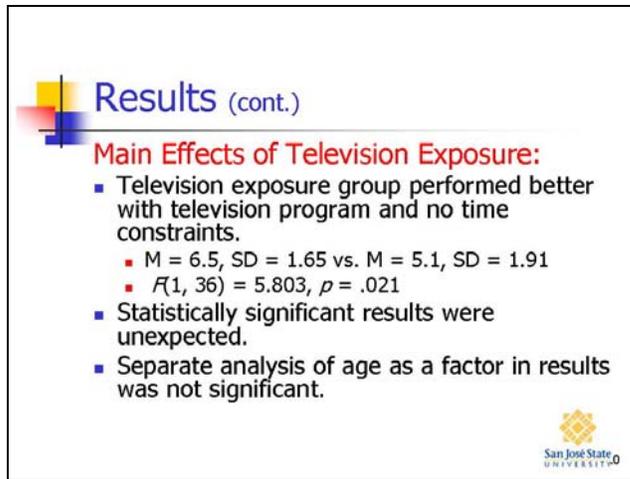
**Results**

**Main Effects of Time Limits:**

- Participants without time limit comprehend more
  - $M = 5.1, SD = 1.91$  vs.  $M = 3.3, SD = 1.70$
  - $F(1, 36) = 9.592, p = .004$
- Answered 55% more of the multiple-choice correctly than participants with time constraints.

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10. Results 2. Describe the effects of Factor 2 on your process.



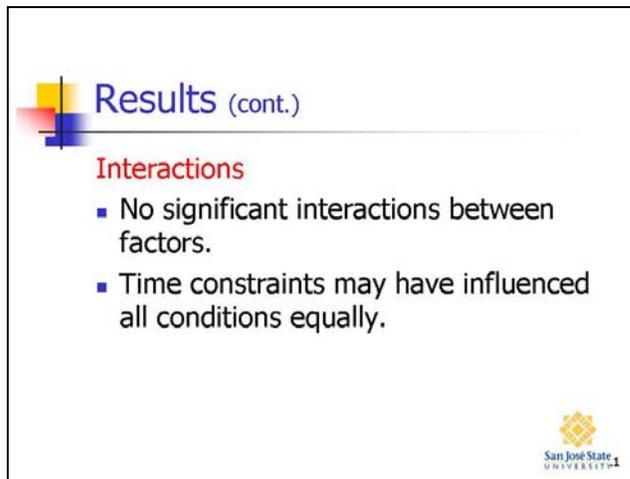
**Results (cont.)**

**Main Effects of Television Exposure:**

- Television exposure group performed better with television program and no time constraints.
  - $M = 6.5, SD = 1.65$  vs.  $M = 5.1, SD = 1.91$
  - $F(1, 36) = 5.803, p = .021$
- Statistically significant results were unexpected.
- Separate analysis of age as a factor in results was not significant.

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11. Results 3. Describe the effects of the interaction on your process.



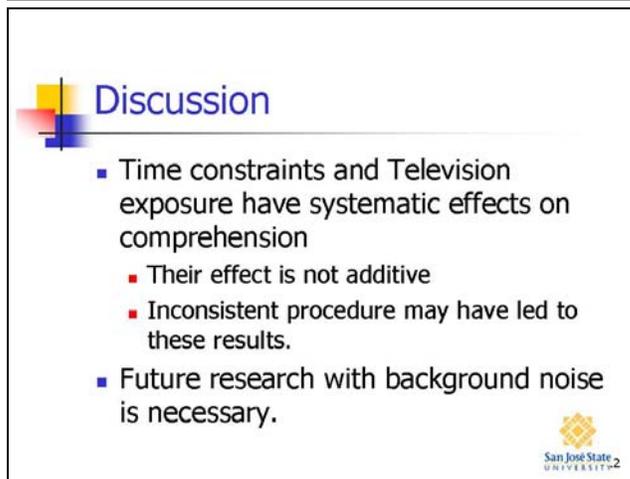
**Results (cont.)**

**Interactions**

- No significant interactions between factors.
- Time constraints may have influenced all conditions equally.

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12. Discussion 1. Discuss how Factor 1 affected your process.  
Discussion 2. Discuss how Factor 2 affected your process.  
Discussion 3. Discuss how the interaction affected your process.  
Closing. Summarize your main findings and their importance. Mention next questions for research.



**Discussion**

- Time constraints and Television exposure have systematic effects on comprehension
  - Their effect is not additive
  - Inconsistent procedure may have led to these results.
- Future research with background noise is necessary.

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**This slide summarizes the discussion too quickly. You can do better.**

13. Last slide. Just write “Questions?” or “Thank you” (and ask for questions)



## *Tips for presenting*

Present your slides *to your audience*.

- It's VERY important to SPEAK TO THE PEOPLE (not to the computer).
- It's VERY important to LOOK AT THE PEOPLE (not at the screen). Eye contact with your audience is fundamental.
- It's VERY important NOT TO READ from your slides. The slides are NOT there for you to read from. *You have to say more* than just what's on the slides. If you just read the slides, then your audience thinks that that's everything that you know. Not good. Talk ABOUT the slides, not TO the slides. :)
  - They're there to reinforce your main points for the audience: we know that for many people, if they see and hear the same thing at the same time, they understand it better.
  - They're there to remind you, the speaker, of the *topics* (not the text) that you want to cover.
  - They're there so that people don't see how fidgety you are – they pay attention to the pretty slides, so you can relax a bit :)
- Don't introduce yourself; the title slide does that for you
- Don't read all the numbers out loud;
- Don't read the titles of the slides, ex: "Moving on to the Method..."
- Be careful not to make too many slides;
- Be careful not to put too much text on each slide
- "Cute" clip art is just that: cute, not professional

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## 2. Put together your full paper

Put all of the pieces of your research project together in the form of a manuscript for publication, following in every detail (!), the *APA Publication Manual* for this. There is an example of a full manuscript starting on p. 306 of the fifth edition of the *Publication Manual* – format your paper in EXACTLY the same way. Use this very helpful example!

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### *Parts of the paper manuscript: a checklist*

These are the parts of the manuscript, in the correct order. Be sure to **make everything double spaced**, with no blank lines anywhere. Do not start the main sections on a separate page, except as indicated. Chapter 1 of the *APA Publication Manual* describes each of these sections in detail – triple check that you have provided all of the information described there in your paper.

The bulleted “Don’ts” refer to things that past students ended up doing and that you should avoid.

Title page. This is a separate page.

- Don’t forget to include the header (a short version of the title of your paper) along with the page numbers in the upper right corner of every page.
- Don’t even THINK of typing in the page numbers by hand! – there’s an automatic tool in Word for the header and page numbers.
- Don’t forget to put RUNNING HEAD: on the first line of the title page with a short version of your title (I use the same thing as the header).
- Don’t include extra information: just title, name, and institution.

Abstract. This is a separate page. Abstracts are no more than 120 words. As a rule of thumb, summarize each of the four sections (introduction, methods, results, discussion) in two sentences each, for a total of eight sentences. Check the special formatting in the *APA Manual*.

- Do NOT forget to talk about all of the sections in your abstract.

Introduction / Lit Review. Start this part on a new page.

- Do NOT put a section title for this section! Rather, remember to repeat the full paper title, centered, at the top of the first page of the introduction, with no blank lines after it.
- Be sure to have sections for your opening, general background on your process, your factor 1, your factor 2, your interaction, and your closing.

Tips

- Don’t use the first person (I, me, my, etc.) and don’t talk about yourself or why *you* were interested in doing the study. Write more formally to sound like a professional.
- Don’t talk about “proof”, “proven” or “proving” things. You can only prove things in math; in science you have better or worse hypotheses that are never proven.
- Some of the drafts I’ve seen only mention one or two other studies when they talked about what other people have discovered about their topic. That’s unacceptable – it’s like making a big sign that says “I don’t know

what's going on!" The whole point is to show the reader that you *do* know what other people have done, that you're well-informed. **You should have about 20 items in your reference list** – less than that makes it look like you didn't take your Lit Review seriously.

### Methods.

- Be sure that your Methods section is in PAST tense. You've already done the experiment.
- Be sure to use the headings for *Participants*, *Materials*, *Procedure*, and *Design and Analyses*.
- Don't forget to mention which factors are between/within and how many/which levels they have.

### Tips

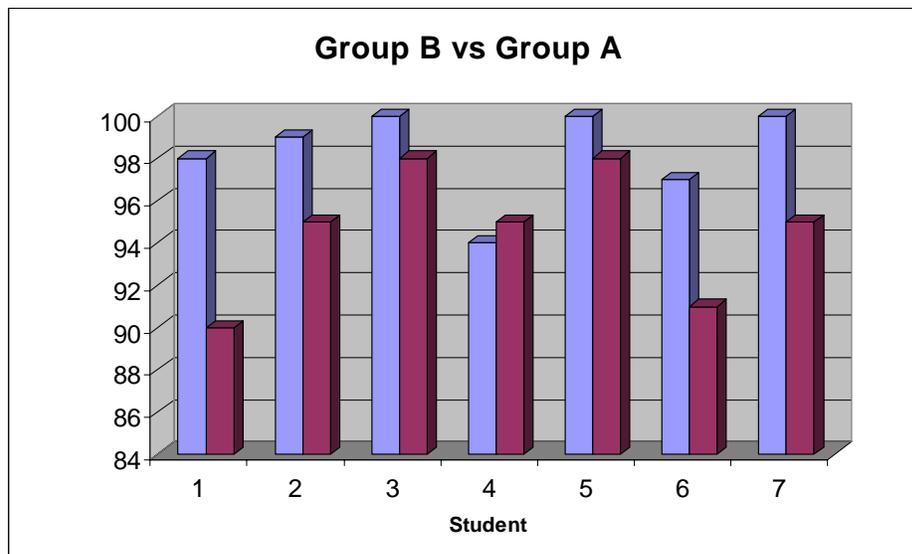
- Describe your method clearly enough so that your reader can repeat what you did, exactly the same way.
- Don't forget to describe how you analyzed and coded your data. Give an example of how you analyzed/coded one or two responses.

### Results.

- Decide whether or not to include tables and/or graphs. Don't forget to put "Insert Table 1 here" if you do include them.

### Tips

- Don't EVER, EVER, EVER cite the names of your participants! All research results are anonymous, always.
- You have to do statistical tests on your data to draw reliable conclusions. Report all of them, even the ones that were not significant.
- Avoid saying that the results turned out "well" or that you were "satisfied" with the results; this isn't useful information for the reader.
- Graphs are done in black, white, and grey with no 3D, extra lines, or other effects. You generally want to plot the group averages, not individual values. For example, in the *terrible* graph below, it looks like there's a reason to display the numbers two by two – but there isn't! For most of your studies, you'll have one number for group A and one for group B.



- Another thing: can you understand what this graph is talking about? No! What are groups A and B? What are the numbers from 84 to 100? No one can tell except the author. Make all of your labels "ridiculously explicit".

- Don't mix information from different sections. Many people talk about the participants and the results in the introduction, the method and discussion in the results, etc. Don't talk about other studies in your Results section. Avoid mixing: be careful to stay focussed in each section.

### Discussion.

- Be sure to have a recapitulation and closing.
- Don't forget to discuss *all* of your results, even the ones that weren't significant.
- Be extra careful to compare and contrast your results with other, published results. Then say why they were similar or different.

### Tips

- There is no section called "Conclusion", just the discussion of your results and how they compare to other, related studies.

### References. Start this section on a new page.

- 20 references or more is about average for a good paper.
- Triple check your reference list: there should be absolutely no references that aren't cited in the text of your paper and no references missing. Only put in your References section the articles and books *that you actually cited* in your text. No more, no less.
- References come *before* the appendices, OK? Check the example paper in the *APA Manual*.
- Also, be VERY, VERY careful to format the references in absolutely correct APA format!

### Appendices. Start each Appendix on a new page, with something like

Appendix C: Background questionnaire

at the top, centered, above the material in the Appendix. The appendices do not have numbers but sequential letters: Appendix A, Appendix B, etc. The title should describe the contents of the appendix quickly and clearly. Do remember to keep the header and page number on the pages of the Appendices.

- Do not put the title of the appendix on a page all by itself.

Figures and Tables. Put only one Figure or Table on each page. Table captions go together with the Table, on the same page. There is a separate page with all of the Figure captions and the figures each go on a separate page. These are NOT appendices (so no titles or page numbers) – they're extra documents that the publisher will figure out how to insert into your manuscript. They come AFTER the appendices.

Include only the figures and tables that you actually cited in the paper. If you didn't cite any tables or figures in your paper, then include one of each with the Extra materials described below.

## Extra materials

For this class, you will have to submit extra materials that are not usually included in a research paper manuscript. Submit all of these **on paper** *separately* from your manuscript – do *not* staple them together with your manuscript.

- Your raw data table. Print out a copy of your whole data table and submit that, too.
- Your script. Submit the script that you used for data collection separately, not as an appendix.
- Your raw data, if you don't want to keep it.

Also, please submit **in electronic form** (by email):

- Your proposal;
- Your final paper with all appendices, and any extra materials that you have in electronic form.

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## Pointers for your Research Paper

No matter how tired you are – and by writeup time, most students and researchers are exhausted – you *have to* find extra energy to do a fantastic job on presenting your work. Too many people will judge your work first on how good it looks!

So, at this point polishing your paper is very important. Be sure to get suggestions for revision from at least three different people. Spelling, grammar, and formatting all count.

Here are some more common things found in student papers that you should avoid:

- Double space all of your text and don't forget to put the running head at the top with the page number.
- Follow the formatting and organization of the sample paper in every detail. They're really very helpful.
- Don't use footnotes! Don't use direct quotations from other authors.
- Don't put extra (blank) spaces between paragraphs or sections.
- Please don't put a plastic cover on the paper: just submit a stapled sheaf of papers.
- EVERYONE, native and non-native speakers of English alike, should get their papers revised carefully! More than one revision is even better.
- Avoid passive voice.

## Further Resources on Presenting your Results

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### Sample Paper Manuscript

The following sample is a good example of a complete student paper. Although there are surely some errors left in it and there are many ways in which it could be improved, it will give you a clear idea of what your finished product should look like.

Notice that the header in the manuscript is different from the rest of the Task Package.

Running head: EFFECTS OF TIME CONSTRAINTS AND TELEVISION

Effects of Time Constraints and Television Exposure on Reading Comprehension

Barbie Jones and Ken Smith

San Jose State University

Abstract

Time constraints and television exposure may interfere with a persons' ability to interpret texts properly and can negatively affect a readers' capability of performing at their highest level in the workplace and school. Forty adults read passages with or without time limits, and with or without television. The number of multiple-choice questions with correct responses measured reading comprehension. Participants who read the text without a time limit comprehended more than participants who read *with* a time limit. Contrary to predictions, participants who read the text *with* television exposure comprehended more than participants who read without television exposure. The interaction of these factors was not significant. The results supported the negative effects of time constraints and raised questions for further study on participants' abilities to filter out distracting stimuli such as television.

### Effects of Time Constraints and Television Exposure on Reading Comprehension

In schools of all grade levels, reading comprehension tests have time limitations. Many of these tests, such as the SAT or exit exams, are very important to the education and future of students. However, time limitations may negatively affect the performance of many individuals that take tests. Especially in the cases of severe time constraints, these constraints may limit the readers' comprehension ability and ultimately inhibit their capability to perform at their highest level possible. Instead of the reader being able to concentrate on the reading passage and questions, the time limitation will distract them. This distraction not only affects individuals in the educational field, but affects individuals in the professional work place as well. Many professionals are often under time constraints to finish projects or read work proposals. Time limitations can inhibit their reading comprehension and cost them or their workplace a lot of money.

Background noise can also be distracting to readers. The effects that background noise has on reading comprehension is an important principle to investigate in order to better understand the impact it has on a person's ability to properly comprehend information. Empirical research has shown that the reduction of memory and information retrieval directly correlates with the exposure of irrelevant background noise (Suter, 1994). Researching the effects that background noise has on reading comprehension will inform educational institutions, employment agencies, households and many other important facilities, of environments that limit reading comprehension, but also save billions of dollars a year on incorrectly comprehended documents.

There are four processes of reading comprehension. The first process is word recognition. This is the ability of the reader to recognize and correctly comprehend words

easily. This process involves taking visual features and word encoding (Chabot, Petros, & McCord, 1983). The more letter knowledge and phoneme sensitivity the reader has, the easier word recognition usually is (Muter, Hulme, Snowling, & Stevenson, 2004). If the reader is unsure of a word, he or she can decipher the meaning by looking at the words around it. The more educated the reader is the easier this process is. The second process, parsing, is being able to look at a sentence or group of words and be able to describe them grammatically. This is the ability to connect the group of words or sentences to each other. The knowledge of grammar structure is priority in this process (Clifton, et al., 2003). The third process is semantic interpretation, which is the interpretation of words or phrases into understandable speech or thoughts. This is the ability to make sense of the sentences or phrases. The last process is knowledge integration takes learned information through the other processes and storing the information learned. This process helps speed up word recognition (Maguire, Frith, & Morris, 1999). Comprehension involves combining prior knowledge with knowledge gained from the story (Maguire, Frith, & Morris, 1999). The reader can apply what he or she read and answers reading comprehension questions correctly. All these processes are required in order to have optimum reading comprehension. These skills become automatic as reading proficiency is increased (Chabot, Petros, & McCord, 1983). These processes take time for the reader to complete and if the reader's time is limited, the reader might not be able to complete these processes as well as they would if there were no time limits or if irrelevant sound is present.

Empirical research has shown that irrelevant sound directly affects an individual's ability to process the meaning of written text. Both semantic and rehearsal processes

allowed comprehension of a message while reading. The presence of sound while a person was reading contributed to the inability of properly comprehending the text meaning (Oswald, Tremblay, & Jones, 2000). Learning new, meaningful information was impaired when irrelevant noise was present. Recall of text information was more successful in quiet conditions rather than noisy conditions: participants recalled information better in quiet conditions rather than noisy conditions (Grant et al., 1999). Empirical studies established that when participants read with background noise, comprehension changed.

Severe time constraints, on the other hand, increased stress or anxiety in the reader, which caused reading comprehension and scores to decrease (Walczyk, Kelly, Meche, & Braud, 2002). However, Walczyk et al. found that mild time constraints created what they called “mindfulness” in the reader causing reading comprehension to increase. Mindfulness created motivation and effort within the reader causing the reader to perform better. Readers, under mild time constraints, with shorter response times had better reading comprehension. Those with no time constraints did not perform as well because they spent more time reading the passage than was necessary. Ture (1992) also found that individuals who read with mild time limits tended to have higher reading comprehension scores and that reading speed increased with educational level. Chobot, Petros, & McCord (1983) also found that speed and accuracy of reading ability increased both with age and grade level.

People with test anxiety have difficulty taking reading comprehension tests even without the additional worry of time limitations. High anxiety individuals take longer to process what they read compared to low anxiety individuals (Calvo & Carreiras, 1993).

Anxiety did not impair their comprehension, but rather slowed it down. High anxiety individuals needed more time to correctly complete and finish tests. The higher the anxiety level, the longer the time needed to complete the tests. Waid, Kanoy, Blick, & Walker (1978) found that low anxiety individuals performed better than high anxiety individuals in reading comprehension tests. The individual's anxiety increased in academic or evaluative situations.

There has not been much research in the specific area of reading comprehension and time limitations. Individuals may need more time to complete tests, but time limitations may greatly lower their scores. Background noise and time constraints affect reading comprehension by distracting the individual from actively decoding a reading passage's message. The present study tests participants' ability to read an assigned passage and answer questions while television and time constraints are present. Contrasting this research to participants tested with no noise and no time constraints helps identify differences in reading comprehension due to environmental conditions. Research into this topic will help educational and other institutions identify the environmental conditions necessary for effective reading comprehension.

## Method

### *Participants*

Forty adults between the ages of 18 and 35 volunteered to participate in this experiment. The examiners recruited the participants on and off campus, and all participants were native English speakers. The examiners made four groups consisting of 10 people each.

### *Materials*

Both groups received the same short text and multiple-choice questions. The short story (see Appendix A) and 12 multiple-choice questions (see Appendix B) were obtained from the SAT website (Mather, 2001). The story and multiple-choice questions were realistic examples of tests that students take to evaluate comprehension using time constraints. The experimenters used a television DVD program in two of the experimental conditions. The program, called *The Best of Jerry Springer* (Springer 2006), is a show that can be distracting because the context is extreme in language, sexual nature, and hostility.

### *Procedure*

In each session, the participants read a passage and answered the multiple-choice questions with or without time constraints and with or without television noise in the background. Participants under time constraints had three minutes to read the SAT passage provided by the examiners. After they read the passage with either no television or television noise present, the examiners took the text away and participants then completed the 12 multiple-choice questions. This time constraint mimicked the standard administration of the SAT. For the SAT, students have 30 minutes to read the passage and complete 35 multiple-choice questions. This is a mild time constraint because it is the average time it takes students to complete these types of tests. Without prior warning, the participants heard the television noise of the TV show both while they read the passage and while they completed their tests. The procedure for both sessions was the same except for the different time constraints and presence or absence of television noise as explained earlier. A questionnaire (see Appendix C) was included with the multiple-

choice questions. The questionnaire provided added background information about participants.

### *Design*

Testing occurred in a two-by-two factorial design by using four conditions. The independent variables were Time Limit (with time limit, without time limit) and Television Exposure (with television, without television) and both were between-subjects factors. There were 10 participants in each condition. Testing took place in similar settings but different locations.

### *Measures*

The number of multiple-choice questions correct measured reading comprehension in each of the four different conditions.

## Results

This study evaluated the effects of time constraints and television exposure on reading comprehension.

### *Main Effects of Time Limits*

Participants who read the text without a time limit comprehended more ( $M = 5.1$ ,  $SD = 1.91$ ) than participants who read with a time limit ( $M = 3.3$ ,  $SD = 1.70$ ). This effect was very statistically significant,  $F(1, 36) = 9.592$ ,  $p = .004$ . Participants with no time constraints answered, on average, 55% more of the multiple-choice questions correctly.

### *Main Effects of Television Exposure*

Participants who read the text *with* television exposure comprehended more ( $M = 6.5$ ,  $SD = 1.65$ ) than participants who read without television exposure ( $M = 5.1$ ,  $SD =$

1.91). The effect was statistically significant,  $F(1, 36) = 5.803, p = .021$ . This result was unexpected.

A separate analysis with television exposure and age as factors confirmed that the effect of television exposure was not due to age,  $F(1, 36) < 1$ .

A separate analysis with television exposure and gender as factors confirmed that the effect of television exposure was not due to gender,  $F(1, 36) < 1$ .

#### *Interaction of Television Exposure and Time Limits*

The interaction of time limits and television exposure was not significant,  $F(1, 34) < 1$ , for the current data set. The difference between no television and television for the no time limit group was the same for the time limit group. The highest average was for the condition with television exposure and no time limits ( $M = 6.5, SD = 1.65$ ). The lowest average was for the condition of time limits and no television exposure ( $M = 3.3, SD = 1.70$ ). Time limits may have influenced all conditions equally.

#### Discussion

The present study focused on how different kinds of distractions affect reading comprehension. Participants read an academic text and answered comprehension questions, with or without time limits or television exposure.

The main effects of Time Limits showed a very statistically significant effect on participants' capability to comprehend the text. Participants without time constraints, on average, answered 55% more of the multiple-choice questions correctly. Time limits negatively influenced participants' scores in all conditions. Individuals needed more time to complete tests, but time limits did not allow them this time. Therefore, time limits lowered their scores on the reading comprehension test. High anxiety individuals have an

even harder time of performing their best on tests that have time limits (Calvo & Carreiras, 1993). This is because these individuals are already stressed or nervous to begin with and time limits are likely to increase their anxiety.

Television exposure *increased* reading comprehension scores for these participants, contrary to expectations. In other studies, researchers found that irrelevant sound negatively affected an individual's ability to process the meaning of written text (Oswald, Tremblay, & Jones, 2000; Grant et al, 1999). The results of the present study, then, may be due to methodological inconsistencies. Inconsistencies in the methods of this experiment may have led to these results. The instructions did not make clear to the participants that interaction and talking between participants were not allowed. Participants interacted with each other during the experiment that could result in the disruption of the attention and working memory processes required in reading comprehension. The volume level of the television may not have been loud enough to affect the findings. Methods need to be more standardized in administration and setting to ensure results that are more accurate.

There were no interactions between time limits and television exposure. This seems to suggest that their effects are independent and may affect comprehension each through different mechanisms.

Noisy environments are common in homes, the workplace, educational institutions, and other important facilities that can influence the ability for an individual's proper comprehension of information. Research on this problem will inform educational institutions and the workplace of environments that interfere with reading comprehension, and may save billions of dollars a year on incorrectly comprehended

documents. Noise such as television may interfere differently with the four processes that are essential to reading comprehension. Since empirical research has shown that irrelevant noise does interfere with the processing of information, more research must examine how irrelevant noise interferes with each of these processes (Suter, 1994; Grant et al., 1999; Oswald, Tremblay, & Jones, 2000). Future research must establish how background noise directly correlates to the reduction of comprehensible information in a wide array of information processing environments.

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## Appendix A: Experimental Text

That large animals require a luxuriant vegetation, has been a general assumption which has passed from one work to another; but I do not hesitate to say that it is completely false, and that it has vitiated the reasoning of geologists on some points of great interest in the ancient history of the world. The prejudice has probably been derived from India, and the Indian islands, where troops of elephants, noble forests, and impenetrable jungles, are associated together in every one's mind. If, however, we refer to any work of travels through the southern parts of Africa, we shall find allusions in almost every page either to the desert character of the country, or to the numbers of large animals inhabiting it. The same thing is rendered evident by the many engravings which have been published of various parts of the interior.

Dr. Andrew Smith, who has lately succeeded in passing the Tropic of Capricorn, informs me that, taking into consideration the whole of the southern part of Africa, there can be no doubt of its being a sterile country. On the southern coasts there are some fine forests, but with these exceptions, the traveller may pass for days together through open plains, covered by a poor and scanty vegetation. Now, if we look to the animals inhabiting these wide plains, we shall find their numbers extraordinarily great, and their bulk immense. We must enumerate the elephant, three species of rhinoceros, the hippopotamus, the giraffe, the bos caffer, two zebras, two gnus, and several antelopes even larger than these latter

animals. It may be supposed that although the species are numerous, the individuals of each kind are few. By the kindness of Dr. Smith, I am enabled to show that the case is very different. He informs me, that in lat. 24', in one day's march with the bullock-wagons, he saw, without wandering to any great distance on either side, between one hundred and one hundred and fifty rhinoceroses - the same day he saw several herds of giraffes, amounting together to nearly a hundred. At the distance of a little more than one hour's march from their place of encampment on the previous night, his party actually killed at one spot eight hippopotamuses, and saw many more. In this same river there were likewise crocodiles. Of course it was a case quite extraordinary, to see so many great animals crowded together, but it evidently proves that they must exist in great numbers. Dr. Smith describes the country passed through that day, as 'being thinly covered with grass, and bushes about four feet high, and still more thinly with mimosa-trees.'

Besides these large animals, every one the least acquainted with the natural history of the Cape, has read of the herds of antelopes, which can be compared only with the flocks of migratory birds. The numbers indeed of the lion, panther, and hyena, and the multitude of birds of prey, plainly speak of the abundance of the smaller quadrupeds: one evening seven lions were counted at the same time prowling round Dr. Smith's encampment. As this able naturalist remarked to me, the carnage each day in Southern Africa must

indeed he terrific! I confess it is truly surprising how such a number of animals can find support in a country producing so little food. The larger quadrupeds no doubt roam over wide tracts in search of it; and their food chiefly consists of underwood, which probably contains much nutriment in a small bulk. Dr. Smith also informs me that the vegetation has a rapid growth; no sooner is a part consumed, than its place is supplied by a fresh stock. There can be no doubt, however, that our ideas respecting the apparent amount of food necessary for the support of large quadrupeds are much exaggerated.

The belief that where large quadrupeds exist, the vegetation must necessarily be luxuriant, is the more remarkable, because the converse is far from true. Mr. Burchell observed to me that when entering Brazil, nothing struck him more forcibly than the splendour of the South American vegetation contrasted with that of South Africa, together with the absence of all large quadrupeds. In his Travels, he has suggested that the comparison of the respective weights (if there were sufficient data) of an equal number of the largest herbivorous quadrupeds of each country would be extremely curious. If we take on the one side, the elephants hippopotamus, giraffe, bos caffer, elan, five species of rhinoceros; and on the American side, two tapirs, the guanaco, three deer, the vicuna, peccari, capybara (after which we must choose from the monkeys to complete the number), and then place these two groups alongside each other it is not easy to conceive ranks more disproportionate in size. After the above facts, we are compelled to conclude, against anterior probability, that among the

mammalia there exists no close relation between the bulk of the species, and the quantity of the vegetation, in the countries which they inhabit.

## Appendix B: Comprehension Test

1. The author is primarily concerned with

**A. discussing the relationship between the size of mammals and the nature of vegetation in their habitats**

B. contrasting ecological conditions in India and Africa

C. proving the large animals do not require much food

D. describing the size of animals in various parts of the world

E. explaining that the reasoning of some geologists is completely false

2. The word 'vitiating' most nearly means

A. infiltrated

B. occupied

**C. impaired**

D. invigorated

E. strengthened

3. According to the author, the 'prejudice' has led to

A. errors in the reasoning of biologists

B. false ideas about animals in Africa

**C. incorrect assumptions on the part of geologists**

D. doubt in the mind of the author

E. confusion in natural history

4. The author uses information provided by Dr. Smith to

**I** supply information on quality and quantity of plant life in South Africa

**II** indicate the presence of large numbers of animals

**III** give evidence of numbers of carnivorous animals

A. I only

B. II only

C. III only

D. I and II only

**E. I, II and III**

5. The flocks of migratory birds are mentioned to

- A. describe an aspect of the fauna of South Africa
- B. illustrate a possible source of food for large carnivores
- C. contrast with the habits of the antelope
- D. suggest the size of antelope herds**
- E. indicate the abundance of wildlife

6. The 'carnage' refers to the

- A. number of animals killed by hunters
- B. number of prey animals killed by predators**
- C. number of people killed by lions
- D. amount of food eaten by all species
- E. damage caused by large animals

7. To account for the 'surprising' number of animals in a 'country producing so little food', Darwin suggests all of the following as partial explanations except

- A. food which is a concentrated source of nutrients
- B. rapid regrowth of plant material
- C. large area for animals to forage in
- D. mainly carnivorous animals**
- E. food requirements have been overestimated

8. The author makes his point by reference to all of the following except

- A. travel books
- B. published illustrations
- C. private communications
- D. recorded observations
- E. historical documents**

9. Darwin quotes Burchell's observations in order to

- A. **counter a popular misconception**
- B. describe a region of great splendor
- C. prove a hypothesis
- D. illustrate a well-known phenomenon
- E. account for a curious situation

10. Darwin apparently regards Dr. Smith as

- A. **reliable and imaginative**
- B. intrepid and competent
- C. observant and excitable
- D. foolhardy and tiresome
- E. incontrovertible and peerless

11. Darwin's parenthetical remark indicates that

- A. Burchell's data are not reliable
- B. Burchell's ideas are not to be given much weight
- C. **comparison of the weights of herbivores is largely speculative**
- D. Darwin's views differ from Burchell's
- E. more figures are needed before any comparison can be attempted

12. Anterior probability refers to

- A. **what might have been expected**
- B. ideas of earlier explorers
- C. likelihood based on data from India
- D. hypotheses of other scientists
- E. former information

## Appendix C: Background Questionnaire

1. Name:

2. Date of Birth:

3. Major (if still in college or if graduated from college):

4. Overall estimated GPA (or finished with school, highest level of education obtained):

5. How many hours a day do you watch television:

---

>1 hr      1-3 hrs      3-6 hrs      6-9 hrs      9 hrs <

6. Do you watch television while you study?

---

1                      2                      3                      4                      5  
Not at all          Rarely                  Sometimes          Most of the time      Always

7. Do you feel that television impairs your ability to study effectively?

---

1                      2                      3                      4                      5  
Strongly disagree      Disagree          Neither agree/  
disagree                  Agree                  Strongly Agree

8. Do you feel pressure or anxiety before taking any exam?

---

1                      2                      3                      4                      5  
Strongly disagree      Disagree          Neither agree/  
disagree                  Agree                  Strongly Agree

9. Do you feel that time limits increase your anxiety when taking exams?

---

1                      2                      3                      4                      5  
Strongly disagree      Disagree          Neither agree/  
disagree                  Agree                  Strongly Agree

10. On a scale from 1-10, 1 being the lowest and 10 being the highest, how difficult did you feel this reading comprehension text was?