Comparing Typography and Kerning Effects on Short Term Memory Recall Abilities

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Abstract

Fonts are something that we interact with every day, especially when trying to memorize short bits of information. We are given phone numbers, addresses, and names to remember. The problem is that this information is easy to forget. Research shows that differences in Serif v Sans Serif and Kerning may have an effect in large passage memorization. The problem trying to be understood here is whether or not these variables affect recall of information when it comes to memorizing small bits of information presented in short sentences. The results showed that there is in fact an effect of Kerning and Serif v Sans Serif. With serif font's a closer kerning lead to the most accurate recall with Sans Serif font, a larger kerning lead to more accurate recall. The implications of this research are that the style and spacing of fonts should be taken into account when presenting short bits of information in a way that increases the chances that an individual will be able to recall the information.

Background

Our research aims to study how variations in the presentation of text can increase short-term memory recall capabilities. Specifically, two main typographical characteristics: kerning and font family.

Gasser et al. (2005)

- Claimed that serif fonts significantly improve recall of the presented information
- Ligatures (serifs) provide visual cues for the reading direction thus reducing attentional requirements in following the direction of text

Our additions:

- Possibility that serifs increase distinctiveness of each letter, reducing cognitive computing required to recognize a word, thus allowing more processes to be dedicated to information storage
- Focus shifts from the neurological and cognitive aspects of reading to the physical characteristics of the actual text being read

Goal: Our study sought to add to the current research and help to determine an answer about the effect and potential interactions of typographical manipulations on short-term memory recall

Methods

- Subjects on Amazon Mechanical Turk
- 12 Local subjects
- 800 x 600 Pixel Screen
- 10 Trials with 10 factual sentences in each block
- Randomized Block order and Question Order
- PsychJS

Sans Serif - Negative Kerning	Serif - Positive Kerning
The man's name is John.	The woman's name is Amy
What is the man's name?	What is the woman's name?
1) Ken	1) Jenny
2) James	2) Kim
3) John	3) Alison
4) Connor	4) Amy

Results

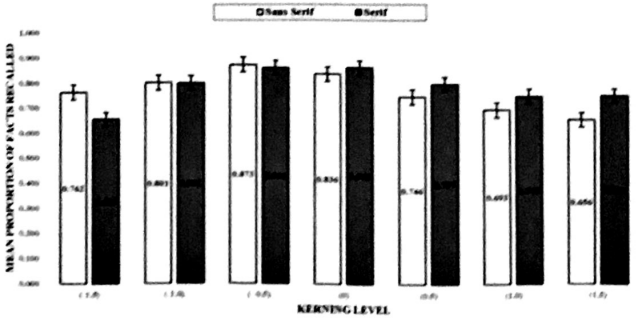

Figure 1. Mean score given kerning level and font-family. Error bars represent the standard error of each level. Means calculated by averaging each participant's proportion of facts correctly recalled from all relative conditions which consisted of each kerning level conditioned for both font-family styles.

- Repeated Measures ANOVA determined scores did not significantly differ regarding font variable ($F(1,40) = 0.395$, $p = 0.533$)
- Found significant main effect for kerning ($F(6,240) = 5.462$, $p <= 0.0005$)
- Found significant interaction between font and kerning ($F(6,240) = 1.068$, $p < 0.05$)

Discussion

Our results show that Serif v Sans Serif and the level of kerning do have an effect on the level of short-term memory recall. Overall when kerning (spacing) between letters decreased we saw an improved memory recall with Sans Serif fonts. However when spacing between letters increased Serif became the better font to use in case of memory recall. One can see that when kerning-level hovered around -.5 and .5 the difference in memory recall was not significant between Sans Serif and Serif.

This conclusion seems to be significant because the presence of the Serif's have an effect and create better memory recall when the spacing or kerning is greater. This research also suggests that when trying to create a memorable factual sentence to present someone, if the font is one with a lot of spacing, one should try to use a Serif font and when the kerning is small, the font chosen should be Sans Serif.

This study suggests that font and kerning has an effect even on short sentences, which is a novel finding as previous research focused only on longer passages. This research also provides the basis to study a variety of fonts with a variety of variables. With further research one could search not only for font factors that are the most important in memory recall but also to find the font that is the best for short-term memory recall. This study did have limited types of information being asked so external validity to the real world may be compromised but to counter that many of the stimuli were very similar to some of the most common examples in the real world. Ideally this research would begin a search to find the perfect font for memory recall and to display important brief bits of information.

Future Implications

Fast reading comprehension is an important part of everyday life. We are constantly required to take in text and be able to process, extract and utilize the information communicated via the text. To this end, it is important to communicate information that must be remembered in the most effective format. With the results of our study we confirmed that their is a significant interaction between kerning and serif type and it's effect on short term recall. This finding can motivate further research that could explore the relationship between that interaction and the speed at which we can read the text

References

1. Gasser, M., Boeke, J., Haffernan, M., & Tan, R. (2005). The Influence of Font Type on Information Recall. North American Journal of Psychology, 7(2), 181-188.