Did the emojis help you in any way?

A pilot survey to investigate if emojis can support text in a helpful way

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Abstract

In the recent years, the usage of emojis have increased. Emojis are a kind of symbols that are used in communication purposes, and contributes with a experienced efficiency and a possibility to communicate nonverbal messages. Another kind of symbols, specially designed, are being combined with text and used by persons with reading and writing impairments to support their reading. This study has investigated if emojis can be used in a similar way as the specific symbols to support text in a helpful way. To explore this, a survey has been answered by totally eleven participants, of which seven reported having reading and writing impairments, and the rest did not. The participants were presented with 14 texts, first without emojis, and later on with emojis. They got to answer if the emoji to had helped them in any way. The results of this study shows that the participants with reading and writing impairment reported the emojis being much more helpful than the other group.

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1. Introduction

The usage of emojis, or emoticons, have increased in the recent years (Riordan 2017). These digital pictures are used in text messages and contributes with primarily emotional meanings. Nonverbal communication is a important part of the human communication, and according to Riordan, emojis helps communicate nonverbal messages through emojis. Furthermore, Huang, Yen, and Zhang (2008) found that people experienced that they were more effective in their communication when they used emojis. In the same study they also saw that emojis could affect the mood and relations between coworkers and hence make them more productive in their work.

Another kind of symbols have been used with the purpose to support text, this is written about by Eliada Pampoulou and Cate Detheridge (2007). In their study, they used symbols produced by a company Widgit that provides 8000 symbols for 27000 words. In their report they writes that these symbols are clean and precise in their design and did not include unnecessary information such as gender. When used, the symbols were placed above the word it supported. Pampoulou and Detheridge writes that the symbols can be used at different difficulties to support a variety of needs. What differed in the difficulties were the amount a symbols, the size of the font, and the amount of text on one page. These symbols are described as a tool for children with reading and writing impairments as well as for people with autism and for those who learns english as a second language. When observed, the symbols seemed to be helpful for the target groups (Pampoulou & Detheridge, 2007). Multiple teachers using the symbols, reported that children that had not had been able to focus and become frustrated when trying to read, now could handle a text with symbols. They wrote that the children reinforced the meaning of the words together with the symbols and became more self consciousness. This, according to Pampoulou and Detheridge, helped the children to become better readers as well as helping them expand their vocabulary.

DigInclude is a research project which aims to include people with reading and writing impairments in the digital world. In the project a text editor (TeCST) has been developed to support writers to produce texts that are easy to read. One of the functions of the editor is to give the user suggestions on how to make the text more suited for the target group by rewriting sentences. This function is called StilLet and is described by Rennes (2016). Additionally, the editor gives suggestions on synonyms to difficult or long words. Recently, a function suggesting emojis as synonyms has been implemented. This function has yet not been investigated, or tested by the target group. The aim of this study is therefore to investigate if the users finds it helpful in any way to have emojis linked to a text. This can be seen as a pilot study for a larger, more specific study.

2. Background

Texts and pictures are commonly seen together, and Rayner, Rotello, Stewart, Keir, and Duffy (2001) conducted a study to get an understanding of how people understand, and perceive that kind of combination. In their study they saw that the participants spent more time looking at the text than at the picture. In this case the participants were given advertisement consisting of both pictograms and texts. Although the participants spent more time looking at the text, they seemed to remember the ads by their pictures, and not by the products name. Glenberg (1992) investigated pictures impact on the readers comprehension and memory of a text. The pictures used did not contribute with any new information. However, Glenberg had the hypotheses that the pictures might work as repetition of important content, as a motivation for the reader, and that the pictures makes a text more enjoyable, and thereby easier to comprehend. However after conducting the study he concluded that pictures support mental models, which is a important part of the working memory and thereby makes it easier to read.

According to Miles and Miles (1999) it is difficult to formulate a precise definition of dyslexia because it's manifestation varies from person to person, and because indicators of dyslexia are not always present. They also point out that definitions often vary depending on the purposes of the social groups formulating the definitions. The common theme throughout these definitions is that dyslexia impairs a wide array of cognitive abilities related to language. It is often associated mainly with reading, but according to Riddick et al. (2002) this is because reading is where dyslexia is often first noticed. This does not mean however, that it is limited to only reading and modern definitions often specify underlying processing difficulties that leads to problems with linguistic skills, such as reading.

A study conducted by Olander, Brante, and Nyström (2017) examined dyslexic adults reading paths, and learning from a text. And they found that this changes if the text is presented next to a picture. They saw that the dyslexic persons spent little time looking at the picture compared to the control group. They also saw that the dyslexic participants struggled with shifting between the two different modalities that are active when perceiving texts and pictures. Olander, Brante and Nyström explained this as a effect of the dyslexic persons need to decode the text without distractions.

3. Method

To be able to investigate the research question of the study, a questionnaire were designed. Since the aim of the study was to investigate whether emojis added to a text would be helpful or not, a simple questionnaire could act as a simple tool to collect answers from the target group. A web based questionnaire is easy to share, and makes it possible to reach out to people who otherwise would have been hard to find.

3.1 Materials

The questionnaire were structured in four major parts, in the first part the participants got to answer questions about their age, their level of education, if they had reading and writing impairments, their reading habits and their emoji usage frequency. The second part consisted of 14 texts. The participant were asked to rate how difficult they experienced the texts on a likert scale from 1-7. Since the purpose of the study was to get the participants subjective view on emojis occurences, a self grading scale with the fuzzy labels “Hard”, and “Easy” were used. The participants were not given any example of what was considered easy or hard. This was done to avoid priming the participants with a certain way of grading.

The same 14 texts were then used in the second part, with the difference emojis were added to them and that the texts occured in a different order. After the text the participant were asked if the emojis had helped them in any way. They could then choose the options “Yes”, “No” or “I do not know”. The last part of the study consisted of questions about how the participant had conceived the emojis presence, if they had some positive or negative thoughts about it, and if they had anything else to add. This last part of the study aimed to get a hold of the participants opinions and experience of the concept.

The texts and the texts with emojis used in the questionnaire were specially designed for this study. The procedure went on in three major steps. Firstly, open source emojis were gathered. The emojis used in this study are Twitters emojis. Secondly, texts with varying difficulties were gathered. The texts came from academic reports, fiction books, and informative texts, their length were one or two sentences. For the texts without emojis, the text were only modified in font and spacing, this was done in Inkscape. Each text had the same font size 40, and double spacing and were placed on a white rectangle to make sure that every png picture would be the same size when imported in the questionnaire. Thirdly, the same texts were going to be supplemented with emojis. Except for the emojis, these texts had the exact formatting as the ones without emojis. This would prevent irrelevant factors as fonts, and spacings to influence the results. For each text emojis were chosen to illustrate words and sayings in it. This selection were based on the official names of the emojis and on the semantic similarity of emojis and words. With inspiration from the company Widget, which Pompoulou and Detheridge (2007) had used in their study, the emojis were placed right above the words they would illustrate.

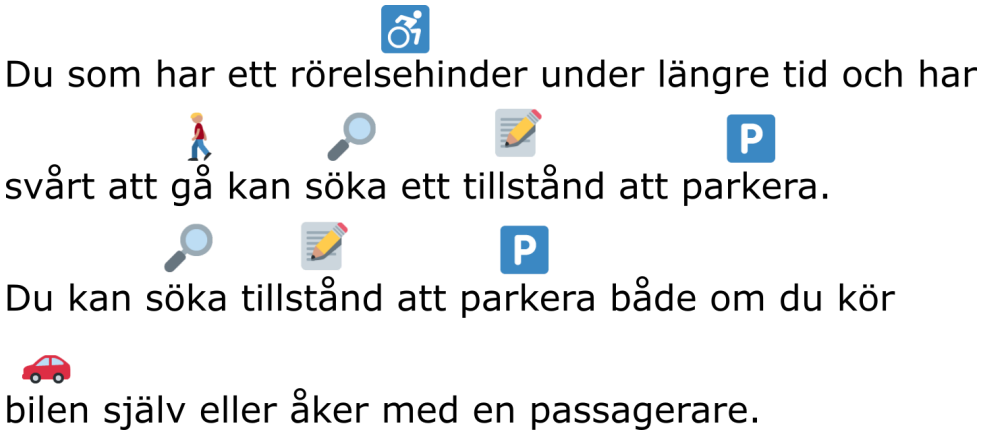


Figure 1. A example text with emojis

3.2 Participants

The study were sent to persons with dyslexia with a relation to people in the research team, as well as to some students without dyslexia. It was also sent to a closed group in social media with the name “Starka Unga dyslektiker” which means “Strong, Young, Dyslexics”. This group is a platform for dyslexics to support each other and share experiences. By contacting the administrator of the group the study were published in their newsfeed with the invitation to contribute to the research.

At total, eleven participants took part of the study. They were of different ages, the youngest was 19 and the oldest was 63 (Median: 26,5). Their highest completed education had the following distribution; High school degree: 5, University degree (three or more years): 5, and Other post high school education: 1. Of the total eleven participants seven of them reported having impairments with reading and writing (Group A) and four did not (Group B). The participants reported a varying degree of reading, where three of the participants reported spending 1-3 hours of reading per week. Four participants reported reading between 3-5 hours, and four read at least five hours per week. All participants reported using emojis on a daily basis, and only two reported using emojis at a single occasion per day, the others answered that they used emojis multiple times every day.

4. Results

The results from the study is both quantitative and qualitative since the survey contained questions that provided different kinds of data.

4.1 Quantitative data

All responses about helpfulness of emojis in texts where summed together across all participants. 35.7% of the texts with emojis was considered helpful, 50% were not considered helpful and in 14.3% of the cases, the helpfulness was considered uncertain.

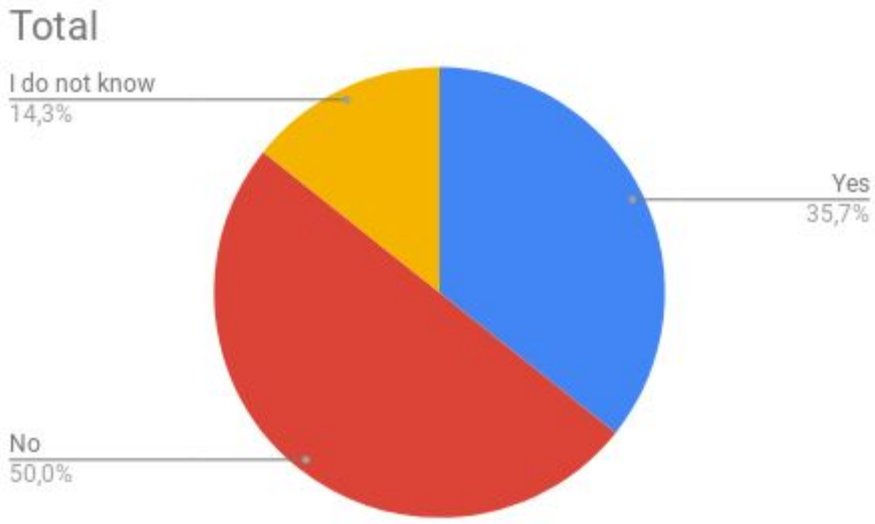
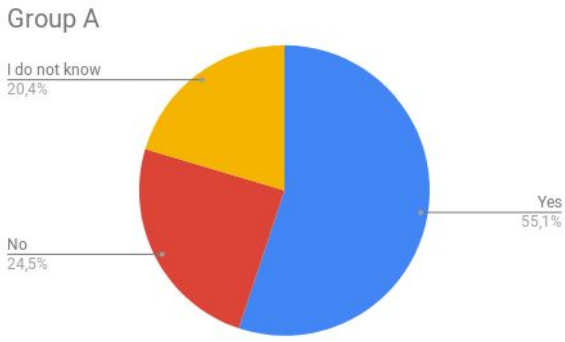


Figure 2. The distribution of the all the participants opinions about if the emojis helped them in any way.

When comparing the differences in helpfulness between Group and and Group B, there was a clear difference. Group A reported that the emojis were helpful in 55.1% of the cases, not helpful in 24.5% of the cases and uncertainty in 20.4% of the cases. Group B reported that the emojis were helpful in 1.8% of the cases, not helpful in 94.6% of the cases and uncertainty in 3.6% of the cases.



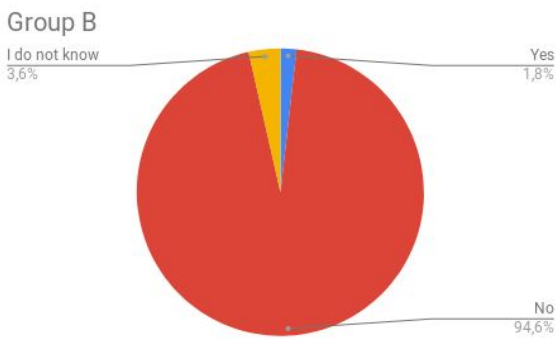


Figure 3. (To the left). The distribution of Group A:s opinions about if the emojis helped them in any way.
Figure 4. (To the right). The distribution of Group B:s opinions about if the emojis helped them in any way.

The participants were also asked how they considered the emojis to impact the texts. 36.4% answered “Easier to read”, 18.2% answered harder to read, 18.2% answered “no impact” and 27.3 answered “other”. On this question there was a clear distribution between Group A and Group B. All occurrences of “Easier to read” and “other” were found within Group A and all occurrences of “Harder to read” and “No impact” were found within Group B

The participants rated the difficulty of the sentences without emojis on a scale for 1-7. As seen in figure X, all sentences were rated fairly easy to read. All sentences rated below 3.5, which is considered average sentence difficulty.

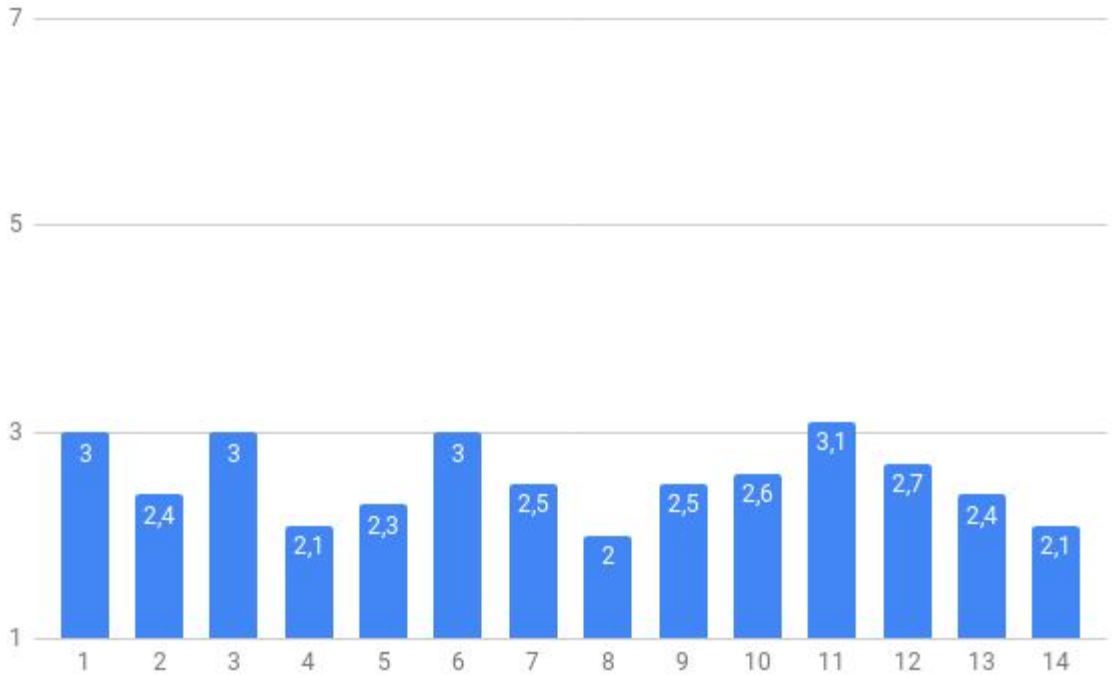


Figure 5. The average difficulty score for all sentences.

4.2 Qualitative data

In the last section on the questionnaire, where the participants could leave comments about what they thought about the positive and the negative aspects of adding emojis to texts, a pattern showed. On the question whether the participant saw something positive with adding emojis, all participants in Group B answered rather negatively. For example, one of the comments were *“Inte för mig, men om det kan hjälpa andra så är det ju en bra sak.”* eng: *“Not for me, but if others can find it useful it might be a good thing”*. This comment suggests that the person can see that it might be useful for others, but personally does not see anything positive with it.

The persons with reading and writing impairments on the other hand, reported much more positive thoughts. In fact, none of their comments regarding positive aspects of adding emojis were negative. However, one on the comments read “*Det måste utvecklas fler emojis för att*

det ska bli riktigt bra!", eng: *"More emojis has to be produced for this to be really good"*. This implies that the participant found the current symbols to be insufficient for their purpose in this study, but that the concept were good. Some other comments shows that the participants experienced the reading to become more efficient, and helped with ambiguity. The following saying implies this *"Det blir lättare för en person med lässvårigheter att kunna läsa mer, snabbare och tydligare. Det kan då medfölja att läsaren undviker missförstånd och blir kanske mer motiverad att läsa mer och förbättra sin läskunnighet."* eng*: "It becomes easier for a person with reading impairments to read more, faster and with more precision. Which can lead the reader to avoid misunderstandings and might become motivated to read more and to improve their reading ability"*.

When it comes to the question about any negative aspects of adding emojis, most of the comments pointed towards the same direction. Both groups said that the emojis made the texts more cluttered. The symbols steal attention from the texts and can make them harder to read. This is illustrated in the following quote: *"Texten blir mer röriga, det tar längre tid att läsa texten efterssom man tittar på bilderna också.",* eng: *"The texts become more cluttered, it takes longer time to read the texts since you look at the pictures as well"*. Some of the participants in group A, said that the emojis sometimes did not match the meaning of the word. This was experienced as confusing. Another comment pointed out that some of the emojis contained english words, which made it harder to understand. One divergent comment, came from a participants from group A, who wrote that there were no negative aspects with adding emojis to texts. This was, however, the only comment with this statement.

5. Discussion

Conduction this study, issues of different nature has occurred, and in this section these issues and their influence on the results will be discussed.

Eliada Pampoulou and Cate Detheridge (2007) are both employed by Widgit Software at the time of writing the article This is a possible concern, since it is their symbol software that is being used in the study and they have a financial interest in a positive result. However, the article has been peer-reviewed and they are careful in the conclusions they draw. Furthermore their conclusions are corroborated by Glenberg (1992) in the sense that both articles conclude that symbols can be a helpful aid to text comprehension.

5.1 Methodological issues

The study had some methodological issues that will be brought up in this section. One of the biggest flaws in the study is the lack of documentation of the usage and interpret meaning of the emojis. In a optimal case, a crowdsource would have been conducted before this study was designed to gather the interpreted meaning of emojis. By doing that, a lexicon of the meanings of the emojis could have been used to match emoji and word more accurate. However, since this study did not aim to investigate the meaning of emojis, it focused more on the concept of having emojis as illustrations to the texts. But it is likely that the eventually misplaced emojis have caused the participants to evaluate the concept in another way than they would have done if a crowdsource had been conducted before.

Another issue is the design of the texts with and without emojis. Some of the participants mentioned that emojis were too small and dark which made them hard to decode. They also brought up that the texts became cluttered when the emojis were added to the text. Considering this, the design of the texts might have been done too fast and without input from the users, which perhaps had an impact on the outcome.

5.2 Result discussion

There was a clear difference in reported helpfulness of the emojis between Group A and Group B. Group A reported the emojis to be clearly more helpful than Group B. The purpose of TeCST is to support writers in making their texts readable, Group A (Participants with a reported reading or writing impairment) is part of the target group to a larger extent than group B. Considering the target group of TeCST, the results suggest that emoji support could be a useful feature. Still, all sentences scored fairly low on reading difficulty. It is possible that the emojis would be more helpful for Group B if the sentences were more difficult, and it is a possible explanation to why some participants in Group B reported that the sentences

became harder to read with emojis, because for this level of difficulty they did not need any support and the emojis became a distraction. It would be of interest to replicate this experiment with considerably harder sentences.

Moving on, many of the participants mentioned that the emojis made the text cluttered and made it hard to focus on the text at the same time as decoding the emojis. This finding is what Olander Brante and Nyström (2017) also found in their study. They explained it by saying that dyslexic persons have a hard time shifting between modalities and that the pictures therefore were disturbing. Contradicting to the finding in Olander Brante and Nyström, this pilot study suggests that Group A found the emojis more helpful than Group B. This could perhaps be explained by the different formatting of the text and pictures. In Olander Brante and Nyström, only one big picture per page were present, compared with this study's constant stream of emojis right above the word. Since the design of this study looks more like the design i Pampoulou and Dethridge (2007) it is perhaps not surprising that the results of this study points in the same direction as their results. It seems like persons with reading and writing impairments finds the pictures helpful which also is supported by Glenberg (1992) who writes that pictures supports the mental images and therefore can be used as a tool for understanding texts.

Furthermore, the study conducted by Rayner et al. (2001) suggests that when texts and pictures occur together people tend to spend more time looking at the text that the picture, even if they later on tend to connect the combitionation with the picture rather than with the texts. Together with the previously mentioned studies, it seems like pictures can reinforce meaning, and enhance the memory, which was also mentioned by the participants. They wrote that the pictures gave them a flow, and made it easier to read faster and for a longer time.

Lastly, the perhaps most important finding in this study, was that the participants found that the emojis helped them. Previous research such as Pompoulou and Dethridge (2007) and Glenberg (1992) have already found that pictures can be helpful when it comes to supporting texts. However, as Riordan (2017) mentions, emojis are most commonly used to communicate emotions, and other nonverbal messages. The fact that these, more general and more emotional connected pictures was experienced as helpful by the participants suggest further research in the area. One possible reason why the emojis worked so well is, like Riordan writes, that they are being used more and more in people's everyday life which could make them easy to use and understand, since no new learning process has to be done before starting to use them. Which could be the case with specially designed symbols as in Pompoulou and Dethridge.

6. Conclusion

To summarise this study, it seems like persons with reading and writing impairments find emojis as support for text as helpful, while persons without these impairments do not. However, the match between words and emojis needs to be improved, as well as the size, and placing of them. The conclusion of this study is therefore that emojis as a support for text that is aimed for persons with reading and writing impairments seems to be helpful, and that further studies on the meaning of emojis, and the design of the support should be conducted.

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