

Earlier this year Canine Concern Scotland Trust assisted Stirling University student, Katie Cattanach in her Masters project. Katie was studying for a Masters of Science in Human Animal Interaction and for her final dissertation chose the following title.

A 'tail' of two halves: The effect of tactile stimulation on reading errors in the case of Canine Assisted Reading by Katie Cattanach, BSc (Hons), MSc, MBPsS,

The following is a summary of her study and findings and how they impact on CCST's "Reading with Dogs" programme.

The study set out to look at the effects of using Therapets to assist children with reading and took into consideration the effects of having contact with the Therapet. In addition it also looked at the effects of using a stuffed toy as a control and potential substitute for a Therapet in a "Reading with Dogs" programme.

The study involved 24 primary school pupils aged between 6 and 8 years. The children were asked to read under 5 different conditions;

- 1) Reading to experimenter
- 2) Reading to stuffed toy while sitting opposite but not touching (non-touch)
- 3) Reading to stuffed toy sitting beside and touching it
- 4) Reading to a Therapet sitting opposite but not touching (non-touch)
- 5) Reading to a Therapet sitting beside them and touching it.

The pupils were tested for 15mins within each condition.

The children were also split into two groups; proficient reading group and novice reading group.

During each condition the "Reading Errors" were calculated and during the sessions where the children were allowed to touch the stuffed toy or Therapet, a "Touch Score" was calculated. These were then subject to statistical analysis. The children were also asked to complete a questionnaire about their reading.

The research found that there was a significant decrease in children's reading errors when the children were encouraged to touch the Therapet. There were also significant correlations between touch score towards the stuffed toy/therapy dog and reading errors. Although there were no significant main effects found in the non-touch conditions, some interesting patterns of data were revealed.

The results and pattern of data collected, suggests that tactile interaction with a live animal is creating a different environment compared to the non-touch and stuffed toy condition. Overall, reading errors tended to increase when participants were allowed to touch the stuffed toy, which may be a result of a number of different factors: one of these being that this was the first instance of tactile interaction whilst reading. Reading to a stuffed toy within an education setting is an unusual circumstance, compare to the familiar settings of reading in school, which may initially cause a distraction when reading, due to the novelty of the situation. Furthermore, since this would require the skill of divided attention it may be the case that attention has been switched onto the tactile stimulus of the stuffed toy, rather than the reading task at hand, which may lead to an increase in reading errors. This supports other studies which suggest that participants tend to perform worse with tasks that involve the skill of divided attention.

The increase in errors may also be a result of an order effect of the study; since the first instance of tactile interaction was always with the stuffed toy. It is therefore, unclear that this effect would not have been witnessed if initial tactile interaction was with the therapy dog.

Further statistical analysis was ran to investigate the relationship between tactile behaviour towards the animal and reading errors. The analysis initially including both reading groups which indicated highly significant relationships between;

- participants "Touch Score" and reading errors
- reading errors when the children were allowed to touch the Therapet
- reading errors when the children were allowed to touch the stuffed toy
- reading errors when the children were allowed to touch the Therapet and "Touch Score".

These results suggest that touch increases with reading errors, which indicates three possible explanations;

- when participants are struggling with their reading or feeling stressed by the unusual situation within the school they touched the dog to calm down
- the stuffed toy/therapy dog was a novelty therefore the children are simply enjoying interaction with a toy or dog
- the dog acts as a distracter, with participants possibly paying more attention to the animal than to reading

Further investigating into the relationship between touch and reading errors were considered by splitting the two reading groups. The proficient reading group (RD) displayed a significant correlation between "Touch Score" and reading errors when they were allowed to touch the Therapet. This finding is in line with our hypothesis that tactile interaction will increase when children struggle with reading material. Since this relationship was not displayed for the novice reading group, and that the proficient reading group received a more difficult reading set, this result suggests that tactile interaction is being sought either as a comforter and/or moral support, when reading is of a more difficult level.

In terms of the novice reading group (ORT) there was a significant correlation between the dog touch score and the stuffed toy touch score, which suggests that tactile interaction displayed towards the stuffed toy is then being emulated towards the therapy dog. This suggests that when participants are of a novice reading ability, tactile interaction is of importance.

Non Touch Conditions

The effects of reading under non touch conditions (reading to the experimenter, stuffed toy (non-touch) and therapy dog (non-touch) were also analysed. This was to investigate if there were any different effects across conditions that did not involve tactile interaction. Participants from both reading groups were included in the analyses. Although there were no significant results obtained, the data did display interesting interactions.

In the first non-touch analysis that investigated the reading errors across the three non-touch conditions, participants made most errors when reading to the experimenter. This was however condition one of the study and the first time that the child had read in any condition. Therefore, more errors may have been made as the child could have been nervous or unsure

about reading to a stranger. The difference between reading errors to the stuffed toy and dog were marginal. This suggests the mere presence of the stuffed toy/dog is possibly beneficial, although not to the same extent as having tactile interaction with a live animal.

The second analysis on the non-touch conditions included a between factor of help at home with reading. This was to investigate if having additional help at home with reading made a difference not only to the child's reading errors but also, to the child's performance in conditions that included the presence of an animal.

The results indicated that those who did not receive help at home made more errors across conditions, with the exception of reading to the experimenter although this difference was marginal when compared to the other two conditions. These results may be a reflection of the child's confidence in their own overall reading ability, which become apparent under the unusual reading circumstances. For example, the concept of reading to an adult within the school environment may not be considered as an unfamiliar circumstance. However, when presented with reading in a more unusual environment such as reading to a stuffed toy or therapy dog, more confidence in their reading ability is possibly required. Therefore, those who have extra help at home are more confident in their own ability and more equipped in coping with this unfamiliar setting. This effect is most evident in the therapy dog condition, where errors are at their lowest for those who receive additional help at home with reading. However, those who do not receive additional help at home with reading, tend to maintain a similar error rate regardless of the conditions they are under.

Finally we investigated the effects of owning a pet at home also using a repeated measures analysis which included pets at home as a between factor. It became apparent when asking the children if they had pets at home that many had a frequent interaction with a pet through other family members. Therefore, this was included as a third category in the analysis. Results showed that those who did not own a pet made the most reading errors across conditions, especially in the experimenter condition. However, in the therapy dog condition there was very little difference in reading errors between those who owned a pet and those who did not. Participants who made the least errors across conditions were those who had frequent interaction with pets. It is suspected that this result may be from having more exposure to different animals on a regular basis, therefore may be less phased by the concept of reading to a strange dog or even stuffed toy. In essence this appears to allow the child to have a more versatile approach to reading under such unfamiliar circumstances. Although not significant, this result is another indication that interaction with animals could possibly make a difference in education settings. However, this only highlights the possibilities of this.

Overall, the results from this study suggest that canine assisted reading appears to have an effect on reading errors, and that tactile interaction is of importance to this type of intervention. They also suggest that tactile behaviour towards the stuffed toy is emulated towards the therapy dog, which suggests stuffed toys may be a resourceful substitute or be used in conjunction with a live therapy dog with canine assisted reading programmes.