



**Research Project:  
Investigating Response to Reading Intervention in Children with Reading Difficulties**

**We would like to invite your child to take part in this original research project!**

Thank you for taking the time to read about our study! **We are recruiting Year 3 and Year 4 children with and without reading difficulties** to take part in this project, which is why you have been contacted.

Participation in this project is voluntary. Choosing not to take part will not change anything about the normal support your child will receive from school or how they are treated.

Please take time to read the following information carefully. If there is anything that you feel is not clear, or if you would like more information, then please feel free to get in touch with us using the contact details at the bottom of this letter.

**Purpose of the study**

Reading difficulties can negatively affect a child's self-esteem and their academic achievement. Children with reading difficulties are, therefore, often offered reading interventions to improve their reading ability. While specialist reading interventions are effective, as many as **30%** of children who take part in these interventions still struggle to improve their reading ability.

We are interested in understanding why this is. We will do this by **providing a reading intervention to children with reading difficulties**, by looking at what the brain does during reading, and by measuring how children perform various reading-related tasks, both before and after the intervention. **For children without reading difficulties**, we only look at their performance in the tasks and how their brain responses during reading. **Their participation is equally important as their results serve as a baseline.**

Our results will help us to understand why some children with reading difficulties fail to respond to established reading interventions. In the future, this may help us develop new interventions or adapt existing interventions to make them more beneficial to students who struggle. Furthermore, if we could predict, early-on, which children are unlikely to benefit from existing reading interventions, we could implement alternative provision, such as assistive technology, sooner, which may prevent these children from falling too far behind their peers.

**What will my child do in the study?**

The steps below outline exactly what will happen in the study, and what your child will be asked to do.

**Step 1 – You are asked to complete the parent/guardian questionnaire and informed consent form**

The questionnaire is short, and is designed to gather information about your child which is relevant for the study, such as their age and gender. We also ask that you sign the enclosed consent form and return it to the school by the relevant date (this will be provided on the letter) if you are happy for your child to take part.

If your child shows signs of having a reading difficulty in our initial assessment, your child will be offered the opportunity to take part in the reading intervention.

You are free to withdraw your child from the study or intervention at any point, and the researchers will never force a child to take part in the study if they do not want to, even if the consent form has been signed.

### Step 2 – Your child takes part in initial assessment

In our initial assessment phase, we will be looking at how your child performs on a variety of reading-related games. This will help us to gauge your child's reading ability, and will indicate whether their reading is age-appropriate, or whether they show signs of having a reading difficulty and therefore qualify for the reading intervention. **Please note that this reading assessment does not constitute an official reading assessment, and will not result in any diagnosis (e.g. dyslexia) being made. It is for research purposes only.**

We will conduct the initial assessments between September – October 2019, and January – February 2020. We will ask children to complete a number of reading-related games. These games include things like word-reading, pseudo-word decoding, memory and vocabulary etc. We will also use EEG, which is a technology that allows us to measure the level of brain activity while your child process words during a simple computerised word-reading game. More information on EEG is provided in the EEG section below.

### Step 3 – Your child participates in a reading intervention

If our initial testing indicates that your child may have a reading difficulty, they will be offered the opportunity to take part in the reading intervention. The reading intervention we will be using is an evidence-based intervention specifically designed to improve the reading ability of students with reading problems. Intervention sessions will be run in school, 3 days a week, in small groups. The intervention sessions will last 30 minutes, and will be delivered by trained research assistants from the University of Birmingham (3<sup>rd</sup> year Undergraduate and Masters students). The reading intervention lasts for 4-months. Intervention sessions will therefore take place between October 2019 – January 2020 or February 2020 – May 2020, depending on which group your child is assigned to. You must be willing for your child to be in either group when signing up for the study because the children will be assigned to groups randomly.

As part of the intervention, your child will complete a 'daily fluency assessment' at the end of each session. These daily fluency assessments are not difficult or stressful. Your child is simply asked to read as many words as they can in 30 seconds. Your child will only be tested on words they have been learning to read in the intervention sessions. The number of words that your child reads correctly will give the instructor an idea of how accurate and fluent your child is in reading these words. Your child can chart their progress in the daily fluency assessments on a graph. Children usually enjoy this process, as it is a way of marking their progress. These graphs will be kept at the school, but you are more than welcome to view your child's graphs.

### Step 4 – Your child takes part in 2<sup>nd</sup> and 3<sup>rd</sup> assessment sessions

If your child does not show signs of reading difficulties in the initial assessment phase, they will **not** take part in the intervention sessions, as they will not benefit from them. However, they will be assessed again. This is so we can compare the performance of children without reading difficulties to the performance to children with reading difficulties who have received an intervention. Children who show signs of reading difficulties and take part in the intervention sessions will be assessed again at 2 time points. They will complete the same EEG game as before, as well as a simple word-reading and pseudo-word reading exercise. This will tell us how their reading ability has changed due to the intervention.

Children in the 1<sup>st</sup> intervention group will be tested immediately after they have finished their 4-month intervention – in February 2020, and again after the 2<sup>nd</sup> intervention group has finished their intervention – in June 2020.

Children in the 2<sup>nd</sup> intervention group will be tested immediately before starting their intervention – in January 2020, and again immediately after finishing their intervention – in June/July 2020.

### Step 5 –Report

Once all children have finished their participation in the project, the researchers will analyse the data and produce a report of their findings. These findings can be shared with you and your child via a letter which will be sent to participating schools. If you would like more information on the progress your child made in the intervention, you are welcome to contact your child's school, or ask the researchers directly. Their contact details are at the bottom of this letter.

### **More on EEG testing**

As mentioned, EEG is a safe, comfortable way of measuring brain activity. We will measure brain activity by placing a 'swimming cap' with a small number of EEG sensors on your child's head (see picture on the right). The sensors will record your child's brain activity while they complete a simple, computerised word-reading game, where your child will need to make decisions about the words they see (e.g. do they sound like a real word or not?).



The cap is comfortable to wear, fast to set up, and can be brought into the school to test your child quickly and easily in an environment that is familiar to them. In order to pick up the brain activity, we will apply a pea-size amount of conductive gel in the holes where the sensors are located. This gel is used in medical settings, for instance for ultrasound scans. It does not irritate the skin and easily washes out. We will disinfect the cap after each usage.

Again, the sensors only record what happens naturally in your child's brain. Brains create electrical activity and this can be recorded on the surface of the scalp. Wearing the cap does not hurt or give electric shocks. It is not a medical treatment, and it does not make anybody smarter. There is no way of knowing what someone is thinking using EEG. Instead, the recordings can show us how strong somebody's brain works when reading. In summary, EEG is informative but entirely harmless.

### **Who is taking part?**

We are recruiting children with and without reading difficulties from **Year 3** and **Year 4** (i.e. 7-9-year-olds). Unfortunately, children with a history of atypical neurological abnormality or trauma (e.g. autism, learning difficulties, psychological or psychiatric disorder), or primary sensory impairment (e.g. uncorrected visual or hearing impairment) cannot take part, as this may interfere with the EEG data.

### **Compensation**

Children will be rewarded with a small gift at the end of the study.

### **What happens to the information/data?**

All information and data will be kept confidential. On the consent form you will be asked to give your child's name, but your child will be allocated an ID number on all other documents/data. This means that no personal data will appear on any reports or publications, and no individuals will be identifiable. The files containing participants' anonymised information will be kept on a password protected computer in a locked office at the School of Psychology, University of Birmingham. Consent forms will be kept in a locked filing cabinet in a locked office at the School of Psychology.

### **What are the possible benefits of taking part?**

Our results will help us understand why some children with reading difficulties struggle to improve in reading interventions. This may help us to develop or adapt existing interventions to make them more beneficial to children who struggle to improve their reading ability. Furthermore, if we can predict which children may fail to improve their

reading ability in existing interventions, we may be able to provide alternative provision, such as assistive technologies, to these children before they have fallen too far behind their peers.

The results of our research should be of interest to educators and parents. We will, therefore, ensure that they are disseminated by publications in scientific journals, and we will share reports of our findings with participating schools and parents.

As explained, if your child shows signs of having a reading difficulty, they will be offered a free evidence-based reading intervention specifically designed to improve the reading ability of children with reading problems/dyslexia. The intervention will be delivered in school hours by trained psychology students.

If your child is taking part as a control participant (i.e. is thought not to have reading difficulties), but our tests indicate that they might have a reading difficulty, we will inform your child's teacher or Head Teacher about this so that they can inform you and signpost your child to the school's SENCO or Educational Psychologist. These children will also be able to take part in the reading intervention.

### **Risks**

Participating in this research will not expose anybody to risks not present in their everyday environment. The EEG recording is harmless and does not affect the participant in any way. In addition, researchers are trained to be alert for potential hazards in the normal school environment.

### **Does my child have to take part?**

Taking part in this project is entirely voluntary. We will ensure that children are able to withdraw at any time when participating in a study, without the need to tell us a reason. For young children we will not present this as an explicit choice, as this may be confusing or worrying for children. For example, the child might think: *"Why has she invited me to take part but is now telling me I don't have to? Am I not good enough to take part?"*. Participation with young children is therefore always presented as a choice. For example, the researcher might say: *"Would you like to do this task with me?"*.

If the child gives any indication, verbal or nonverbal, of boredom or discomfort, the researcher will check whether the child wants to stop. You or your child can withdraw their data at any point during the study, and up to 2-months after taking part.

If you would like to withdraw your child from the reading intervention, you can contact the PhD researcher or her supervisors, whose details are listed at the bottom of this document. If you wish to withdraw your child from the reading intervention, you will be contacted by the PhD researcher to ask whether they can use your child's data collected up until the point of withdrawal. You have no obligation to allow this if you do not wish to.

### **Where will the study take place?**

The study will take place in your child's school. There is no need for you or your child to travel anywhere different specifically for this study.

### **What if I have more questions or I would like to know what the research findings are?**

If you have any questions or would like further information, please feel free to contact Kate, the PhD researcher, or either of her supervisors, whose details are provided at the bottom of this document. Children are welcome to discuss the tasks with the researcher at the time of the assessment.

At the end of the study we will send a short report to the participating schools explaining the research findings. This might be made known to parents via school notice-boards, emails, or individual letters. If you would like to know how your child progressed in the intervention, you can contact their school or ask the researchers directly using the contact details at the bottom of this letter.

### **What happens now if I decide to let my child take part?**

If you are happy for your child to take part, the first thing you will need to do is to complete the parent/guardian questionnaire and informed consent form and return it to your child's school by the relevant date, which will be given on the forms.

Thank you very much for your time. Your help is very much appreciated!

If you have any further queries or if you would like to learn more about our research, please feel free to contact:

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