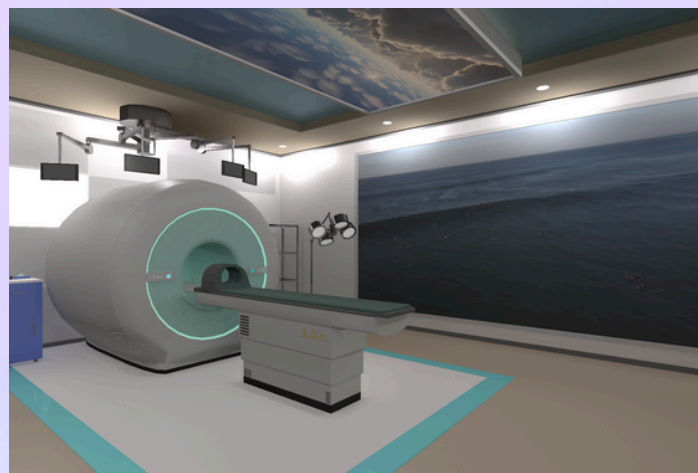




# Immersive Technology Therapist Training Manual



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# Introduction

**This manual covers a specific aspect of therapeutic intervention for people experiencing high anxiety, that is, how to arrange ‘graded exposure’ in a way which is manageable and predictable.**

Carefully graded challenges within individually tailored situations can be created with immersive technology, and the participant is allowed to control when they are ready to move on to the next step. For people with Autism Spectrum Disorder (ASD), who may experience difficulties with the imaginal aspects of graded exposure, this immersive technology offers appropriate exposure for specific fears/phobias (i.e. those which can be presented visually).

Thus the manual does not cover broader aspects of psychological intervention for mental health conditions. The broader case formulation of a person’s difficulties may have many elements. This specific intervention is designed to focus only on overcoming a specific fear.

The immersive technology processes have been designed for young people aged 8 to 14 years with ASD and for adults on the autism spectrum, who are verbally able enough to participate, and who do not have high levels of generalised anxiety. The materials have also been adapted for those with autism and/or learning disabilities (see Appendix 3).



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## Appendices:

1. Scripts for relaxation training.
2. Letter format to be edited, inviting children/young people to the immersive sessions.
3. Adapted materials.

## Research publications:

Maskey, M, Lowry, J, Rodgers, J, McConachie, H & Parr, J (2014) Reducing specific phobia/fear in young people with autism spectrum disorders (ASD) through a virtual reality environment intervention. PLoS ONE9 (7): e100374. doi:10.1371/journal.pone.0100374

Maskey, Morag, Jacqui Rodgers, Victoria Grahame, Magdalena Glod, Emma Honey, Julia Kinnear, Marie Labus et al. "A Randomised Controlled Feasibility Trial of Immersive Virtual Reality Treatment with Cognitive Behaviour Therapy for Specific Phobias in Young People with Autism Spectrum Disorder." Journal of autism and developmental disorders (2019): 1-16.

Maskey, M., Rodgers, J., Ingham, B., Freeston, M., Evans, G., Labus, M., & Parr, J. R. (2019). Using virtual reality environments to augment cognitive behavioral therapy for fears and phobias in autistic adults. Autism in Adulthood, 1(2), 134-145.



# 1. Initial training and preparation

## 1.1. Direct training with Clinical Psychologist Trainer

**Expected background of the Therapist who will work directly with the person with autism and the relatives/supporter:**

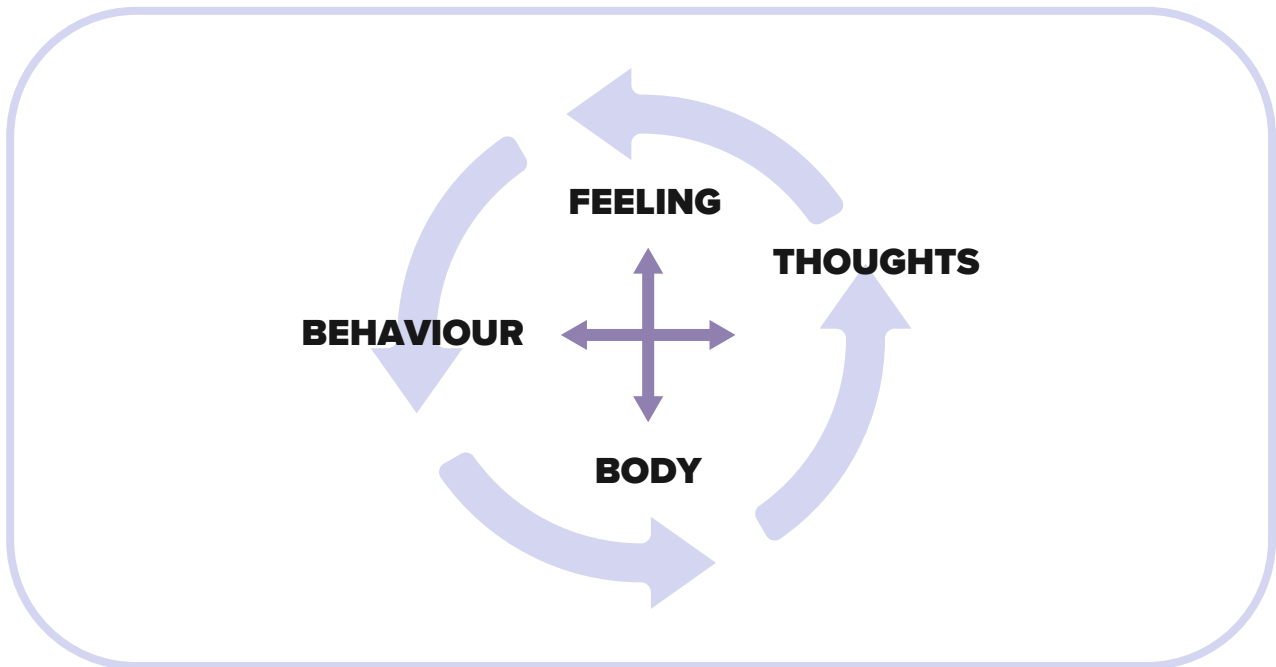
- Experience in working with individuals who have ASD. It is desirable that they have worked in a therapy or education context with verbal children of school age and/or adults with ASD with appropriate language skills. There would be many transferrable skills from working with children and/or adults with ADHD.
- The therapist may not at first know much about anxiety or psychological therapy approaches. The therapy approach laid out in the manual is programmatic, and the therapist will be supervised in delivery. Background reading will fill in much about the nature of anxiety in children and adults, and how various behaviours may reveal underlying anxiety (see suggested reading in 1.2).
- The Trainer will have expertise in Cognitive Behaviour Therapy (CBT) for anxiety in children and young people and/or adults. Ideally, they will also have experience in applying CBT to people with ASD.

A **training session** of around **one and a half hours** should be carried out between the Therapist and the Trainer. In advance, the Therapist should read the Manual, and the Maskey papers cited above.

- 1.1.i Watch the short summary video about the immersive technology.
- 1.1.ii Depending on the level of experience of the Therapist, therapy elements to cover in the training session should include the process of: How to establish whether the person with autism can recognise their own anxiety and other emotions.



Introducing the concept of the ‘**hot cross bun**’ – that behaviour, physical response, thoughts, and emotions are all linked and all affect each other. Some participants will be able to engage in this more than others. Some will just need to know e.g. that ‘relaxation helps your body’.



- Creating a generic situation to help explore how the person experiences and describes their emotions, using the hot cross bun. Beginning with some other emotion than anxiety (e.g. happy / cross).
- Normalising anxiety – e.g. ‘everyone gets worried some of the time – it can be helpful – but if it is too bad it can stop us doing things’, etc.
- Individualising - Finding out which words the participant uses to describe their anxiety (do they use ‘worried’ / ‘scared’?) .
- Using scales to help a shared understanding of what the person is like when they are a little / moderately / very anxious. (What am I like when I am number 3 on the anxiety scale?). Modelling with different emotions using generic situations (e.g. “when I am going on holiday I am “3” excited, but the day I got a new puppy I was “5” excited). Adapt the situation described to the age of the participant. The scale can be presented with a velcro strip beside it and a face representing the participant, so they can show the level without saying a number. We would usually use a 6 point scale; however, for some participants this is cognitively challenging. In that case, it may be more effective to use a simpler scale such as traffic lights (red, orange, green) or even just two alternatives (thumbs up, thumbs down). See appendix for examples of adapted scales.



- Exploring the situations which make the person anxious (How do you know you would be less anxious in a medium situation than a high anxiety one?)
- Discussing the hot cross bun of anxiety – if you can change one or two elements then anxiety may be reduced.
- Exploring what thoughts go through the person’s mind when in an anxious situation – developing rationalising thoughts/mantras. It is important not to describe these anxious thoughts as ‘bad’ thoughts as this can be taken literally, and they can infer that they have bad thinking.
- Introducing physical relaxation techniques and the importance of practising them between sessions. (See suggested script, Appendix 1). Whether delivering the session to adults or children with autism, their supporter(s) should be present to get a better understanding of anxiety and to practice the relaxation exercises with the participant.

# Anxiety Scale



1.1.iii Talk through the process of delivery of the initial visit, and the Immersive Studio sessions, as described in the rest of the manual.

1.1.iv. Show clips of sessions from the start of the intervention with a child who has a dog phobia - Note that these clips were made during a phase of trying out the presentation of computer images on a computer monitor.

First, show around 7 minutes of delivery of the images along with breathing reminders and checking the level of anxiety. Comment on how the therapist sometimes listens to the child's talk and sometimes moves the process on.

Second, show some minutes of how the therapist started session 1 of the exposure, by going over relaxation, breathing, and a positive thought.

Third, show the end of session 2 (about 6 minutes) which includes the summing up of what has been achieved. Mention that in working with adults, the sessions can have more verbal content and discussion and negotiation than those sessions with children and young people. Adults may also disclose aspects of anxiety during treatment sessions that they were not able to vocalise or describe during the pre-session work e.g. during a session they may be more specific about what it is in their feared situation that produces the most anxiety. There is often opportunity to adapt the scene during the gap between sessions to accommodate this.

## 1.2 Individual supplementary reading/preparation

### **Background reading - *Principles of CBT*:**

"An Introduction to Cognitive Behaviour Therapy: Skills and Applications" by D Westbrook, H Kennerley & J Kirk, 2011, Sage Publications

"Think Good, Feel Good: A Cognitive Behaviour Therapy Workbook for Children" by P Stallard, 2002, Wiley.

### **On CBT / anxiety in children:**

"Helping children cope with anxiety" by J Eckersley, 2006, Sheldon Press.

"Anxiety in neurodevelopmental disorders: Phenomenology, assessment, and intervention" by V Grahame & J Rodgers, In Van Herwegen, J & Riby, DM (eds) Neurodevelopmental Disorders: Research Challenges and Solutions, 2014, Psychology Press, Abingdon, Oxford.

### **Considering adaptations of CBT for children with ASD:**

"Exploring Feelings: cognitive behaviour therapy to manage anxiety" by T Attwood, 2004, Future Horizons.

Maskey, M, Lowry, J, Rodgers, J, McConachie, H & Parr, J (2014) Reducing specific phobia/fear in young people with autism spectrum disorders (ASD) through a virtual reality environment intervention. PLoS ONE 9(7): e100374. doi:10.1371/journal.pone.0100374. This published paper on the development study explains the procedures well.



# 2. Preparation for the Clinic visit





## 2. Preparation for Clinic Visit (or this may happen at participants home or a place of their choosing)

**Discuss any information already obtained from the family/supporter from the first visit by the researcher, including:**

- Age and verbal fluency of the participant;
- Level of anxiety/impact on functioning;
- Situations that make the person anxious;
- If possible, an idea of what situation/s the participant is particularly anxious about should be explored at this stage, and therefore what their 'target situation' might be;
- Effect on individual/family life;
- What, if anything, the participant does already to deal with their anxiety/coping strategies and any other therapy they have tried for anxiety;
- How the participant describes anxiety in their own words (e.g. worried, scared);
- Some basic information about how anxiety is experienced (e.g. physical – heart-beating etc., worrying thoughts), if they are able to express this. Often participants find it difficult to recognise the physical sensations of anxiety.



# Schedule of visits

	<p><b>Clinical Visit</b></p> <p>The therapist is to teach the CBT techniques from the training to the person and parent (s)/supporter and agree target situation to work on. Time taken approximately 45 minutes.</p>
	<p><b>Immersive Studio</b></p> <p>Occurs about 2 weeks after the above session and will be 2x 20-25 minute sessions using immersive technology with a 20-minute break in between sessions.</p>
	<p><b>Immersive Studio</b></p> <p>Within one week of the above visit and same procedures. Ends with the next steps given to parents / supporters and person with ASD.</p>
	<p><b>Follow-up</b></p> <p>Research team will carry out follow-up visits to children to monitor progress.</p>

Plan and prepare individualised materials. **The resources pack contains:**

- Checklist of what to go through at visit 1;
- A print-out of the relaxation techniques;
- Laminated visual anxiety scale with interchangeable words/space to write new words;
- Alternative 'traffic light' scale.



# 3. Visit process and structure

## 3. Therapist clinic visit process and structure

The therapist should meet the family/supporter(s) at visit 1, a few weeks before they attend the immersive sessions. The visit should take no longer than an hour. At this visit, the following things should be explored with the participant, with parent/carer/supporter observing.

### Basic CBT concepts

- Explain that feelings, thoughts, behaviour and body are interactive and affect each other and draw out “hot cross bun” as a visual support.
- Concrete examples of what happens in different situations. E.g. thoughts, feelings, behaviour and body reactions on Christmas Eve (if appropriate).
- Ask participant about their hot cross bun in different situations (e.g. if they get a present, or win a game). Try and include a situation around their special interests, if appropriate.
- Repeat this (thoughts, body reactions, feelings, behaviour) with a situation which makes them anxious.
- Referring back to the diagram, explain to the participant that if we can change some of the elements, e.g. thoughts and body, we can help the anxious feeling reduce (because they are all interlinked).
- An introduction to anxiety, normalise it and an explanation of when anxiety can become a problem. E.g. “Everybody gets anxious sometimes and it can be helpful, it can keep us safe. But sometimes it gets too much, it stops us doing things, and we have to learn to control it”.



## Introduce scales of levels of emotions

- Begin with a 6-point scale (with removable words). The therapist should model this with “excited”, using different examples. They should then get the participant to practise using intensity scales with “happy”. This scale will be used to communicate within the immersive sessions.
- If the participant is not able to use the 6-point scale / has difficulty understanding it, try introducing a traffic light system, e.g. cross feeling – green (not at all angry / calm), amber (getting angry, feeling uncomfortable), red (very angry).
- If the participant has difficulty understanding or using both of the above scales, introduce the concept of thumbs up/thumbs down to communicate anxiety level. The examples used could be related to the hot cross bun examples used previously.
- Finally, the scales should be practised using the participant’s own word(s) for anxiety.

Discuss with the participant how to decide on the 'goal situation' that has been suggested for working on, or explore with them which situation they find most difficult.

Use the appropriate scale to find out their level of anxiety in this situation / what makes the level of anxiety lower or higher. This is a useful time to obtain information about the best stages for increasing difficulty in the immersive programmed scenes, details of what they find more/less anxiety-provoking in their situation, etc.

Work with the participant to establish an observable and specific goal, for example, if the person is anxious about dogs, the goal may be that they will be in the same room as a dog for 5 minutes and manage their anxiety. If the person is not able to take a bus because of their anxiety, their goal may be that they will take a bus with their supporter to the town centre.

This goal will then form the basis of a subsequent confidence rating scale (e.g. “If you had to take a bus from home to the town centre now, how confident would you feel on a scale of 1 to 6?”) and is like a ‘contract’ so the participant knows exactly what they have agreed to try to do.



## Introduce relaxation techniques

- Remind that, due to the "hot cross bun", if we can relax the body, it will help the anxious feeling.
- Request all that are present to join in.
- Go through controlled breathing and progressive muscle relaxation (see Appendix 1).
- Ask the participant how they feel after (if it is helpful).
- Ask the participant and parent/carer to practise these techniques before the immersive technology sessions.

Discuss the use of positive statements or mantras (give examples, e.g. "I can do this").

You may be able to find out what they think (e.g. "It'll stop soon") and then explain what an alternative might be, using yourself as an example. Ask them to have a think about coming up with their own before the immersive sessions, if appropriate.

**Give lots of positive praise as appropriate, and remind them that they will be doing similar things (relaxation, scales etc.) in the immersive sessions.**

**Also, discuss that there won't be any 'nasty' surprises and that we don't want them to be 'high (6/red) anxious' at any time.**

**Ask if they have any questions or anything that they would like explained again.**



# 4. After the clinic visit / Before the immersive sessions

## 4. After the clinic visit

Write a summary note about the visit, as soon as possible after it has taken place. Use the information obtained at the visit to consider the person's individual scene and how the level of 'challenge' might be graded. Discuss this with the team and VRE designer to finalise how the scene will 'unfold'.

**Example:** The researcher had established that a child was particularly afraid of dogs when out and about and the dog was lively.

**File note by therapist:** "Please do let me know if you think of anything I've missed! It occurred to me over the weekend that I didn't discuss with B whether or not barking/dog sounds affect his anxiety - apologies for this oversight."



## Visit with B

B was verbally fluent and talkative, engaging well with the discussion about the hot cross bun of behaviour, thoughts, body, and emotions. He was also able to confidently use the scales to grade his feeling strengths. He was able to identify thoughts and agreed to think about some coping statements with his mum before coming to the VRE sessions. He engaged really well with the relaxation exercises and agreed to practice these before the next session.

His specific anxiety is around dogs. He described that when he sees a dog he feels 'scared', his heart races and he wants it to go away (or get it away, e.g. "kill it"). He became distracted at times with humour around using pepper spray on the dog but was able to be guided away from this.

He was able to use the scales to indicate that the main factors affecting his anxiety are:

- Size of the dog (Chihuahua would be OK, Labrador-sized dog would not);
- If the dog is on a lead;
- How far away the dog is (e.g. on a lead at the end of the street would be tolerable, however, would be more anxious as it moved closer);
- How old (energetic) the dog is – if the dog is old and slow, this is more tolerable than one that is younger / jumpy, etc.

If possible, it would be great to be able to manipulate all of the above features, i.e. be able to have a large/small dog, on or off the lead, which we could move closer to (or it move closer to us). I appreciate the last point may be more difficult, but if it would be possible to be able to change the movement level of the dog, that would be a bonus!

We discussed these scenarios as if we were seeing a dog in the street. Do you think this would be possible? If not, I'm sure another setting such as a park/ square would be fine!"

### **Finalise individualised materials**

**Prepare an individualised social story to send (if appropriate), to prepare the participant for the VRE visit (see Appendix 2 for example).**



# 5. Immersive Sessions

## 5. Immersive Sessions

Before each new scene, learn and practise the controls on the tablet with the help of the programmer. We would suggest arriving approximately 30 minutes before the session to allow time for this.

### 5.1. Before entering the immersive session room

- Talk through with the participant and their supporters in the waiting area about what is going to happen.
- Remind participants that he/she can say stop/leave at any point; agree on how they will let you know they wish to do this.
- Ask for the current level on the 6-point Confidence scale for the agreed goal.
- Remind about relaxation skills – take a few deep breaths together.
- Remind about positive coping statements – ask which ones the participant is going to use (suggest, e.g., “I’m going to be OK, I can do this”, if they do not have one prepared).
- Reintroduce the ‘anxiety’ scale for communication. Ask where the participant is on their own ‘anxiety’ scale.

### 5.2. In the immersive sessions

#### General points:

Control the environment. For example, if a child/adult takes off his shoes, place them where he cannot ‘fiddle’ with them. (If using a computer screen, control the distance of the chair from the table so the viewing distance is reasonably consistent. Be aware if the participant leans forward that they may suffer eye strain.)

In general, adjust your style to the participant. If they tend to distract themselves by talking, remind them to look at the scene. If they get hung up on numbers, such as counting a breath in and then out, then just say ‘slow’ breaths. If they start fiddling about with the Velcro strip on the scale, then just ask them to say the number on the ‘anxiety’ scale or point.



If the participant refuses to do physical relaxation exercises or finds them distracting, then try a 'stress' ball and encourage a focus on the relaxation after pressing (rather than tensing and continuously pressing it).

If the participant says "This is just immersive technology, it does not seem real", agree that it is not real but its value is in being able to practice. We have found that participants will go along with it, and practice. Remember that saying 'it's not real' may be one way of coping and that some anxiety is actually being felt.



Begin by showing one of the relaxation scenes to help them become used to the room, and understand that it is possible to move through the scene.

Introduce the relaxing scene/music, and go through the breathing and progressive muscle relaxation exercises. Give praise, "well done". Use the 'anxiety' scale so the participant says how scared they feel for that scene – if "high", do some more breathing/relaxation. Ask participant what statement they will use.

Beginning at the lowest challenge level, navigate through the scene whilst;

- Frequently checking how high their anxiety level is;
- Reminding about taking deep breaths and focusing on being relaxed;
- Frequently asking them about their thoughts / to repeat their positive coping statements;
- Constantly being aware of the person's body language / outward signs of anxiety (especially tense shoulders).

Repeat the scene until the participant is consistently reporting a low level of anxiety, and using breathing techniques and coping statements effectively. With adults, there may be an opportunity to explore their thoughts on the situation as it unfolds in the immersive sessions. This may give deeper insight into the thought processes and the specific triggers for the fear they are experiencing.



The participant may say they are willing to go on to the next step but stay aware of their possible physical signs of anxiety. Gradually increase the difficulty of the scene, with the participant's agreement, making sure that their anxiety level remains low, and repeating each stage until the participant has 'mastered' their anxiety control at that level.

- Make sure not to rush/progress through challenge levels too quickly;
- Try and ensure the participant is engaged with the scene at every stage.

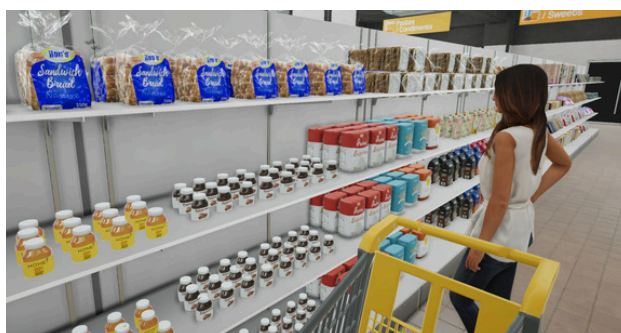
At the end of the session, briefly sum up what the participant has done, emphasising that he/she has brought down their anxiety. Encourage the participant to verbalise the strategies they have used to control their anxiety.

Break after approximately 20 minutes.

## Session 2

After the participant has had a break, repeat from section 5.1 – although the introduction and initial relaxation scenes will be quicker at this stage. Begin the participant's scene at a challenge level they have already 'mastered' before the break, ensuring their anxiety level is low / under their control before moving on to more challenging scenes.

End session after approximately 20-30 mins.



Sum up again. Use lots of positive praise, discuss/remind the participant of how far they have come in controlling their own anxiety (e.g. "You have done brilliantly! When we first started you were 5 scared of being on an empty bus, and by the end, you were able to be on a bus with 6 people and use your breathing and positive thoughts to keep yourself nice and calm – only at 2 scared! Well done!")

Note down where you left off session 2, so you know where to start session 3 at the subsequent visit.



**NB:**

During the sessions, the researcher will be sitting with parent(s)/supporter(s) observing. The parent/supporter will indicate on the confidence scale how they think the participant would react to the target situation, at the start of session 1 and end of session 2. They will observe the techniques being used, and the small steps. The researcher will explain to the parent/supporter that the therapist is building up with the participant the sense that they can control the anxiety. The researcher may advise the family/supporter not to practice in real life until after making a plan at the end of session 4 (i.e. in cases where parents/supporter(s) seem likely to push the participant to real-life exposure).



Repeat all steps from sessions 1 & 2, moving more quickly through the introduction/relaxation stages. Begin session 3 a few stages before the final stage of session 2, ensuring that the participant's anxiety remains low, before moving on to more challenging levels.

Depending on the participant's scene/suitability for the individual, it may be appropriate to reduce the level of support provided/ frequency of reminders to use relaxation techniques, use positive thoughts etc.

It may occasionally be appropriate to allow the participant to control their own scene using the tablet – ensure that the participant remains engaged with the scene and relaxation exercises if so. (Be careful that the scenario is not navigated like a video game).

### **5.3. At the end of the immersive sessions**

Consider and discuss with the participant and family/supporter the steps to adopt, aiming for 'real' exposure.

Agree and outline a plan that the participant and their caregiver/supporter feels comfortable with. This is particularly important with adult participants in the sense that they need to agree a path to exposure that both the adult participant and their caregiver are comfortable with.

Write down the plan and proposed steps of increasing difficulty; this can be written into a visual format such as a ladder with steps going upwards (photocopy so each have a copy).



# 6. Measurement of change

## 6.1. Confidence

The simplest measurement is to ask the participant, and the parent/supporter, before VRE sessions and afterwards, and at the time of tackling the target situation in real life, to report how confident they feel. A visual 6 point scale is used. It is important that the goal has been written to be observable and specific.

## 6.2. Independent rating of symptoms

Standardized scales (such as the Spence Children's Anxiety Scale) may not include the exact item(s) of most concern to a participant or their caregivers and may fail to reflect real change important to the individual family. Instead, the researcher will prepare a short vignette about the participant's symptoms in relation to the specific fear or phobia at baseline.

The process followed was developed by the Research Units in Pediatric Psychopharmacology, (Arnold et al., 2003, Parent-defined target symptoms respond to risperidone in RUPP autism study: customer approach to clinical trials). The researcher asks questions such as 'how often?', 'how distressed?' and 'How does the fear interfere with daily activities?' in a standard format to the parent/supporter and participant, to enable a vignette to be written about the fear and its severity/impact.

Pairs of vignettes (for example, from baseline and 6 weeks, six months and twelve months after baseline) are later compared by an expert panel to assess the degree of change of the reported fear symptoms from baseline on a 9-point scale, from 'normalised' (1 on the scale) to 'disastrously worse' (9 on the scale). Those whose paired vignettes are rated 3 or less (corresponding to 'definitely improved' or better) are classed as responders to treatment.



# Additional Materials

## Appendix 1: Scripts for relaxation training

- Muscle relaxation
  - Breathing
- 

## Appendix 2: Immersive sessions invitation (letter format to be edited)

- My Immersive studio visits (for children/young people)
  - In the Immersive studio
- 

## Appendix 3: Adapted materials

- Advice to Therapists
- Consent Form: Immersive studio sessions
- My visit to the Immersive studio
- Anxiety/Worry/Scared (Choose word preferred)
- Where I feel anxious body diagram
- Sort through body feelings
- How my body feels when I am Anxious
- Discussing Specific Situations: Examples
- Discussing Specific Situations
- Thoughts diagram
- Feelings, thoughts, actions sheet
- Severity scale
- Three-point anxiety scale
- Alternatives to a numerical scale
- Traffic Light scale
- Muscle Relaxation (modified)
- Hot Drink Relaxation
- “This is me” document pack

## Appendix 1

# Suggested Script: Muscle Relaxation

We will start at the bottom of our bodies and work up learning how to relax each part of our body at a time. To learn what it feels like to have relaxed muscles, first of all we have to know what it feels like to have tense muscles. So I want you to screw up your toes as tight as you can, that's right really screw them up into little balls, feel how tight your toes and feet feel and hold them really really tight (hold for about 10 secs) and now let them go – see how relaxed and floppy they feel now.

Next I want you to pull your toes back up towards your knees as tight as you can. Feel it pulling down the bottom of your legs. Pull them back so they feel really tight and hold it, okay, and now relax your feet again. Do your legs feel a bit heavy? That's what it feels like to have relaxed legs and feet.

Now we need to know about the top half of our legs. Press your knees together as tight as you can and push your bottom down hard on the chair or floor. Really feel those muscles in your legs pushing and hold them really tight (hold for 10 secs). Ok and relax and give your legs a little shake. Now you have totally relaxed legs.

Next we will do our tummies. Take a deep breath in and pull your tummy in as tight as you can. Try to make it disappear. Pull it in really, really hard. That's right hold it tight (10 seconds) and then relax, feel how comfortable it feels when your body relaxes.

Next your arms, make arms like a muscle man and really show me those muscles. Pull them in really tight until your muscles start to bulge, good, now hold it there (for 10 seconds) and relax. Shake your arms out and let them relax completely.

Now clench your fists as tight as you can. Squeeze those fingers in really hard and feel how tight your arms and hands feel. Hold it (for 10 seconds) and now let your hands go floppy and relaxed.



Now I want you to try and touch your ears with your shoulders. Pull them up as tight as you can and see if you can feel the tightness in your neck and across the top of your back. Hold it tight like that (for 10 seconds) and now relax. Let your shoulders slump as the muscles let out all that tension and go floppy.

Now we're onto our head. First of all wrinkle up your nose as tight as you can and hold it (for 10 seconds), now let it go and let your face go all droopy and soft. Now push your tongue against the roof of your mouth so that your mouth feels all tense and frozen, push it and hold it (for 10 seconds) and then relax and feel how nice it is.

Clamp your lips together, push them down and try to smile so that you can feel the tightness in your cheeks, hold it there (for 10 seconds) and then let all the tension escape.

Lastly just screw up your whole face as tight as you can so that you can feel the muscles pulling all round your head, really screw it up, that's right, and hold it there (for 10 seconds) and now let it all go and see how much calmer your head feels.



## Appendix 1

# Suggested Script: Breathing

Sit comfortably and close your eyes.

Concentrate on taking a deep, slow breath in and as you do, feel the air flowing in through your nose.

Now, let the air out slowly as you concentrate on breathing out through your mouth. Take another deep breath in, again feeling the air coming in through your nose and then slowly let it out through your mouth.

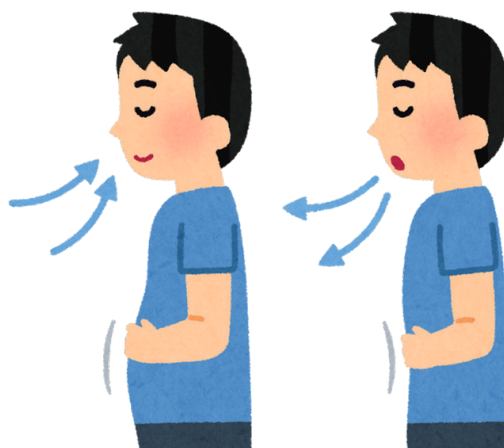
In...Out...In...Out... While you are concentrating on your breathing you are starting to feel more and more relaxed.

Now I want you to imagine there is a candle in front of you, and when you breath in... and out...in.... and out.... Your breathing makes the flame flicker.

Imagine the flame flickering as you slowly breathe in... and then again as you breathe out. Your breathing is now feeling very, very relaxed, and all your worries are draining away with every breath out.

In... and out... in... and out...in... and out.

Now imagine that you blow the candle out and when you are ready, open your eyes.



## Appendix 2

# My Immersive session visits

(for Children/Young people)

On Saturday 26th and Sunday 27th at 11.00 am, I will go and visit the Immersive Studio in Gateshead.

My mum or dad will come with me.

When I am there, I will see (*insert names*), that I met before.



*[INSERT PHOTOS OF ALL STAFF THE PERSON WILL MEET]*



[Staff name]



[Staff name]

There will be some different rooms, the first one is where I can have a drink and a rest, where mum or dad will wait with Morag.

Then I will go into a different room with Jess, which has the 'Immersive Studio' in it.

Beside the Immersive Studio is an area with a sofa, where I can sit and talk to Jess or just relax quietly.



## Appendix 2

# In the Immersive studio

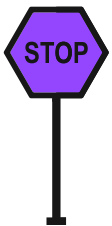
When I am ready, I will go into the Immersive studio. Jess will come in with me.

Me and Jess will do some of the relaxing exercises that we practiced at home. We will also talk about some of the things we talked about at home, like my thoughts and how my body feels.



In the Immersive studio, there will be a scene which has been made just for me.

Together, me and Jess will be able to control some of what happens in my scene, like how many pigeons there are. We will also keep talking about what is happening and how I am feeling.



I can come out of the immersive studio or ask for the pictures to be stopped whenever I want. Jess will make sure she knows what I will say or do if I want this to happen.

Sometimes, I will take breaks and come out of the Immersive studio, to make sure I am feeling comfortable.



After I have practiced my scene in the Immersive studio a few times, I will go back into the first room and see Mum.



## Appendix 3

# Advice to Therapists

Some people with a diagnosed learning disability or condition that impacts on cognitive functioning may need very little adaptation when providing this treatment approach whereas others may need adaptations. There is no single approach applicable to everyone however these general principles should always be considered. If a client has a prior communication or cognitive assessment then the recommendations should be reviewed prior to the first appointment.

Amongst other things, cognitive impairments can impact on comprehension, spoken language, vocabulary, memory, impulsivity, attention, processing and perceptual reasoning. Some people may have difficulties in all of these areas whereas others may have specific impairments in one area and strengths in other areas. Sometimes a person will be stronger at non-verbal tasks versus verbal tasks or it might be the other way round.

The issue of consent to receive the treatment needs to be explored in more detail with people who may not fully understand the potential risks and benefits. It is also important to determine a client's motivation to undergo the treatment as sometimes it may somebody else who feels the treatment is important as opposed to the client themselves.

If the issue of consent seems unclear then discuss the treatment process using a visual aid with the client (see resource pack), outline the potential benefits and side effects of the treatment and attempt to get the person to explain this back to you and indicate their decision clearly about wanting to continue. They should also be able to understand their right to withdraw or not undergo the treatment. If the client is unable to do this then you could only proceed with the treatment if deemed to be clearly in their best interests. A best interest decision should take into account the clients views, involve family members or carers and appropriate professionals. Consent should be revisited again prior to the exposure stage of treatment.

Research indicates that approximately 95% of people with learning disabilities find it difficult to access standard written information (All-Party Parliamentary Group for Education, 2011). Offer the easy-read resources provided and consider reading to or with the client to facilitate their understanding.



In your information-gathering session, find out whether the client has any visual or hearing impairments for which reasonable adjustments should be made. Ask the client to wear their glasses or hearing aids if these are required. Hearing and visual impairment are more common in people with learning disabilities compared to the general population (Emerson & Baines, 2010). Consider whether resources should be enlarged or printed on differently-coloured paper, whether the volume should be turned up on the Immersive studio, and whether or not a British Sign Language or Makaton interpreter is required.

Tailor your communication with the client, ensuring you make appropriate adjustments to optimise the client's understanding and ability to participate. Research indicates that approximately 90% of people with a learning disability have difficulty communicating and around half have difficulty with both understanding and expression (RCSLT, 2010). Consider adapting your language by using simpler, more commonly heard words and shorter sentences. Avoid using complex language or jargon and make any examples as 'concrete' and relevant to the client as possible. Allow silences to occur in the conversation in order to give the client ample uninterrupted time to process what has been said.

For some clients, 'open-ended' or abstract questions for example – “What do you think about the picture?” may be tricky. Similarly, 'yes or no' questions need to be used carefully and check that the client isn't just responding the way they think you want them to. Keep questions as simple as possible and try to make them 'either/or' for example “Do you like coffee or tea?” “Does this make you feel calm or scared?”

Using increased and exaggerated gestures can help to make communication clearer. When addressing your client make sure you make eye contact and occasionally say their name to get their attention. Provide instructions in short sentences, one at a time, and check that they have understood by getting them to explain things back to you before moving on. Sometimes people with a learning disability may indicate that they have understood something when this is not the case. This could be because they want to comply (particularly in a situation where there is a clear power imbalance) other times it may be a learned appropriate social response.



It is important to regularly and sensitively ask your client about what you have been discussing or explaining, particularly if this is a critical part of the treatment. If clients cannot give some indication that they have understood the basics of something from the session it's likely that they may not have understood, despite what they say or what their body language tells you. You will need to try to go back over the topic in a more simple or visual manner. You could consider role-play or involve the person's support in this. Encourage the carer or family member to go through some of the materials in between the sessions.

It is worth considering that people with relatively higher perceptual reasoning (non-verbal) abilities may prefer to learn by 'doing' or learn through visual aids rather than just hearing instructions. The use of clear and interesting visual aids is therefore encouraged if this seems helpful. A toolkit of visual resources is included in this pack. Some clients may find apps helpful. You may consider using an app such as Breathwork which has a visual aid to demonstrate how to regulate breathing.

If you do not understand what your client has said it is important, to be honest and clarify this. Use a compassionate phrase such as "Sometimes it is hard for me to understand; could you say that again please?" If you still cannot understand, ask the client if it is okay to ask the carer or family member they have brought to support them. Ensure you ask about the client's communication preferences. They may find it easier or preferable to write things down or use a communication aid, as opposed to speech. In this case, ensure the client brings whatever resources they use to communicate to all their sessions.

A general rule of delivering any therapy with somebody who finds it harder to process and retrieve information is that you need to take more time adopt a slower pace to the session and allow more time for the person to answer any questions or reflect on experiences without interruption. It will also be helpful to repeat key concepts several times and encourage 'over learning'.

Some people may have difficulties with working memory i.e., the storage and retrieval of information (particularly information that is new to them). It would be helpful at the end to go over the key concepts of the session content ending with 1-3 simple messages that could be written down or illustrated in a "session diary" that you could revisit at the start of the next session.



Research also demonstrates that people with learning disabilities may be more susceptible to suggestibility and it is important to be aware of this particularly when asking them to rate their feelings during and after the exposure tasks. It is worth reaffirming the importance of being as honest as possible and being aware of how your tone of voice and body language may potentially influence your client's responses.

Although the treatment manual encourages the involvement of supporter/ parent/ carer this can be even more important when working with adults with learning disabilities or other significant cognitive difficulties. A carer would be particularly important for devising the exposure scenes and encouraging the client to stay in the more anxiety-provoking exposure tasks up until the point where their anxiety begins to reduce. Also, it is important that a carer knows the client well and is aware of their power in that relationship. It would be helpful to go through this guidance with a carer, particularly at the end of treatment when they have a role in prompting the client to undergo real-world exposure tasks.

Consider adding an additional preparation session, potentially visiting the Immersive studio and viewing some relaxation scenes, in order to provide extra time to help the client build up a trusting relationship, process information, and learn to appropriate skills needed. This could take place in the immersive studio room where the client can revisit parts of the immersive pre-session that may need learning again.

#### **References:**

- RCSLT. (2010) Adults with Learning Disabilities: Position Paper. Royal College of Speech and language Therapists.
- All-Party Parliamentary Group for Education. (2011) Report of the Inquiry into Overcoming the Barriers to Literacy.
- Emerson E and Baines S (2010) Health inequalities and people with learning disabilities in the UK: 2010. Improving Health and Lives: Learning

#### **Additional references to be added to the manual;**

- Communicating with people with a learning disability | Mencap
- [cbt-id-manual.pdf \(ucl.ac.uk\)](https://www.ucl.ac.uk/psychology/research/cbt-id-manual.pdf)
- Hassiotis, Angela & Serfaty, Marc & King, Michael & Strydom, Andre & Parkes, Charles & Martin, Sue & Azam, Kiran. (2012). Manual and materials for individual CBT for adults with mild intellectual disability and mood disorders.



## Appendix 3

# Consent Form: The Immersive studio



The Immersive studio is where I will look at a screen. I will see videos and hear sounds. What I see and hear will be like real life.



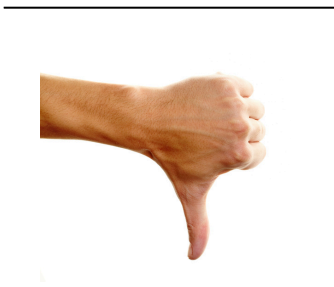
I will get to help decide what will be on the screen.



Immersive technology can be a helpful way to face things which make me feel anxious or scared.



Some people find immersive technology is helpful.

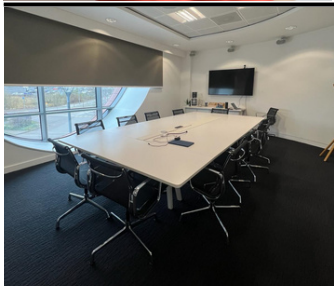


Some people find immersive technology is not for them.





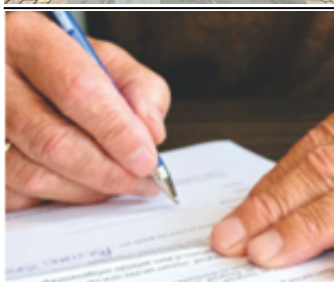
If it is too much I can ask to stop.



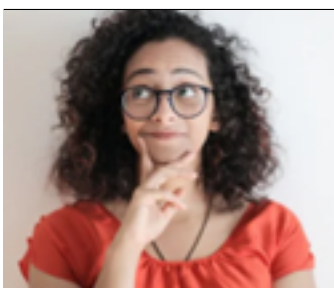
If I would like a break, I can ask for a break.



I can leave at any time.



By signing this form, I am saying I am happy to take part in therapy using immersive technology and go in the immersive studio.



I can change my mind at any time.

**Name** \_\_\_\_\_

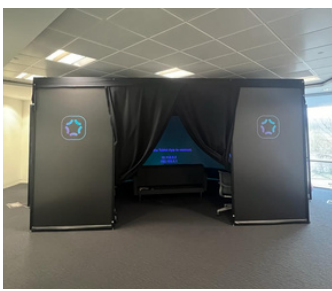
**Signature** \_\_\_\_\_

**Date** \_\_\_\_\_



## Appendix 3

# My visit to the Immersive studio



The Immersive studio is a room where I will see pictures and hear sounds.

It has a comfy sofa and a big screen.



I will go to the room on \_\_\_\_\_ (day),

In the morning/afternoon



I can take someone with me, like my mum, dad, or support worker.



The Immersive studio is in a building called **The Northern Design Centre**.



I'll meet someone at the desk and then go upstairs.





I'll meet with \_\_\_\_\_.

\_\_\_\_\_ came to see me at my house.

We will do some relaxing exercises.



We will talk about when I feel anxious.

We will talk about how my body feels when I feel anxious.



When I am ready, I will go into the immersive studio.

There will be a scene on the screen. I can help control what is on the screen.

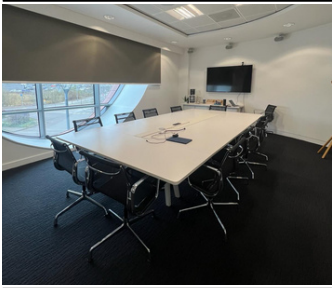
I will use the screen to practise being in places that usually make me feel anxious.



\_\_\_\_\_ will talk to me and check how I feel.

I can leave if I want to or ask for a break.





I will practise for a little while then have a break in the other room with the person I bring with me.



Then I can go back to the immersive studio and practise some more.



When I am done, I will have a chat with \_\_\_\_\_ about how I think it went.

Then I will leave.



Appendix 3 - Adapted Therapy Materials

# Anxiety/Worried/Scared

(Choose word preferred by client)



Anxiety is a feeling.

You might call it feeling **scared** or **worried**.

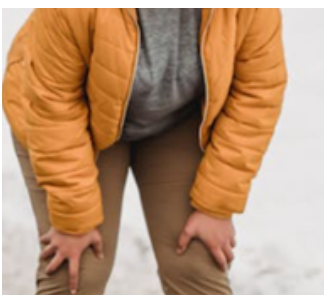


When we are anxious our **bodies** can feel tense and **different**.

Your heart might feel too fast.



You might feel sweaty.



You might breathe quickly.





It is normal to feel anxious sometimes.



Different things make different people feel anxious.



Some people feel anxious around dogs.



Some people feel anxious on the bus.



Some people feel anxious going shopping.





Sometimes a place or an activity can make somebody feel very, very anxious.

You might call this a '**phobia**'.

**I can feel anxious when....**

---

---



When someone feels very, very anxious it can stop them doing things or going places.

**I can find it difficult to....**

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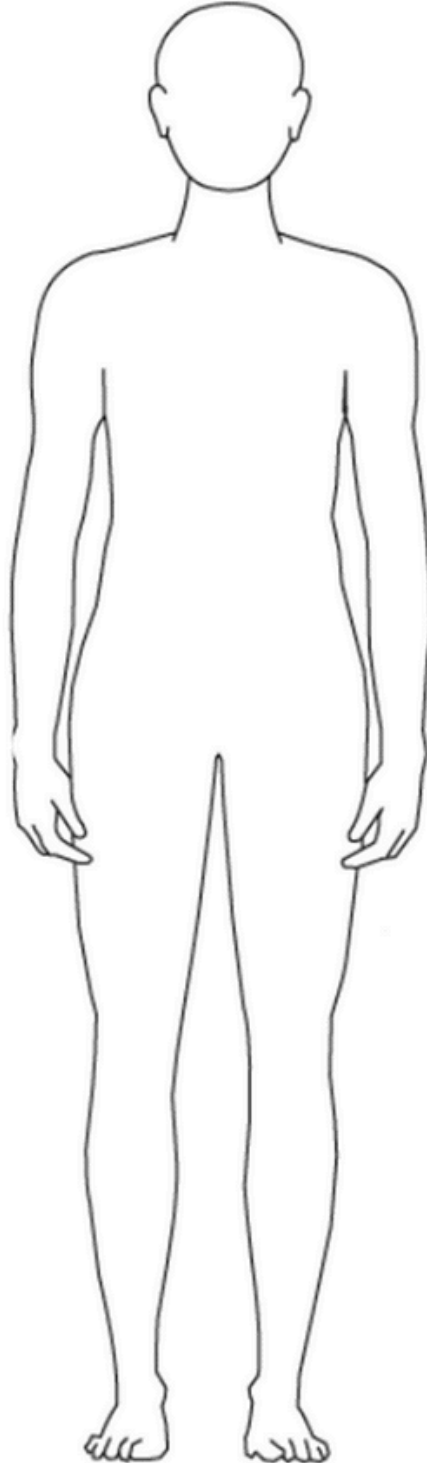


Understanding your thoughts and body feelings when you are anxious can help to manage your anxiety.



# Where I feel anxious body diagram

Colour in where you feel anxious on the body map:



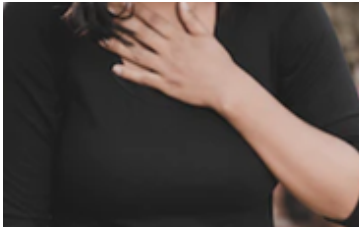







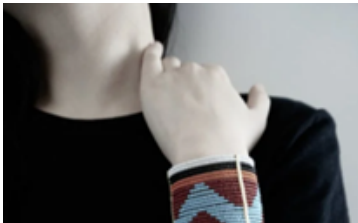

**Can you describe how those bits of your body feel?**



Appendix 3 - Adapted Therapy Materials

# Sort through these body feelings

Work out if any of them describe you when you are anxious:




<p><b>My heart feels fast</b></p> 	<p><b>I cry</b></p> 	<p><b>I scream</b></p> 
<p><b>I shout</b></p> 	<p><b>My mouth feels tight</b></p> 	<p><b>I can't talk</b></p> 
<p><b>My throat feels tight</b></p> 	<p><b>My head feels sore</b></p> 	<p><b>I think bad thoughts</b></p> 
<p><b>I want to hide</b></p> 	<p><b>My shoulders feel tight</b></p> 	<p><b>My body feels weak</b></p> 



<p><b>My stomach feels funny</b></p> 	<p><b>I feel sick</b></p> 	<p><b>I need the toilet</b></p> 
<p><b>My legs go wobbly</b></p> 	<p><b>My chest hurts</b></p> 	<p><b>I breath fast</b></p> 
<p><b>My hands shake</b></p> 	<p><b>I clench my fists</b></p> 	<p><b>I can't see properly</b></p> 
<p><b>I feel dizzy</b></p> 	<p><b>I snap at people</b></p> 	<p><b>I feel grumpy</b></p> 
<p><b>I hurt myself</b></p> 	<p><b>I run away</b></p> 	<p><b>I throw things</b></p> 






# How my body feels when I am Anxious

<p>This sounds like me</p> 	<p>I am not sure</p> 	<p>That doesn't sound like me</p> 






Appendix 3 - Adapted Therapy Materials

# Discussing Specific Situations

<p>I feel okay about ...</p> 	<p>I am not sure about ...</p> 	<p>I do not feel okay about ...</p> 



# Discussing Specific Situations: Examples

<p>I feel okay about ...</p> 	<p>I am not sure about ...</p> 	<p>I do not feel okay about ...</p> 
<ul style="list-style-type: none"><li>• Someone walking their dog on the other side of the park.</li><li>• My friend's dog.</li><li>• Some small dogs.</li></ul>	<ul style="list-style-type: none"><li>• If the dog starts to come towards me.</li></ul>	<ul style="list-style-type: none"><li>• Dogs sniffing or licking me.</li><li>• Dogs barking.</li><li>• Unfamiliar dogs.</li><li>• Big dogs.</li></ul>



# Thoughts diagram

My Thoughts when \_\_\_\_\_

\_\_\_\_\_



This makes me feel \_\_\_\_\_

This is what I do \_\_\_\_\_

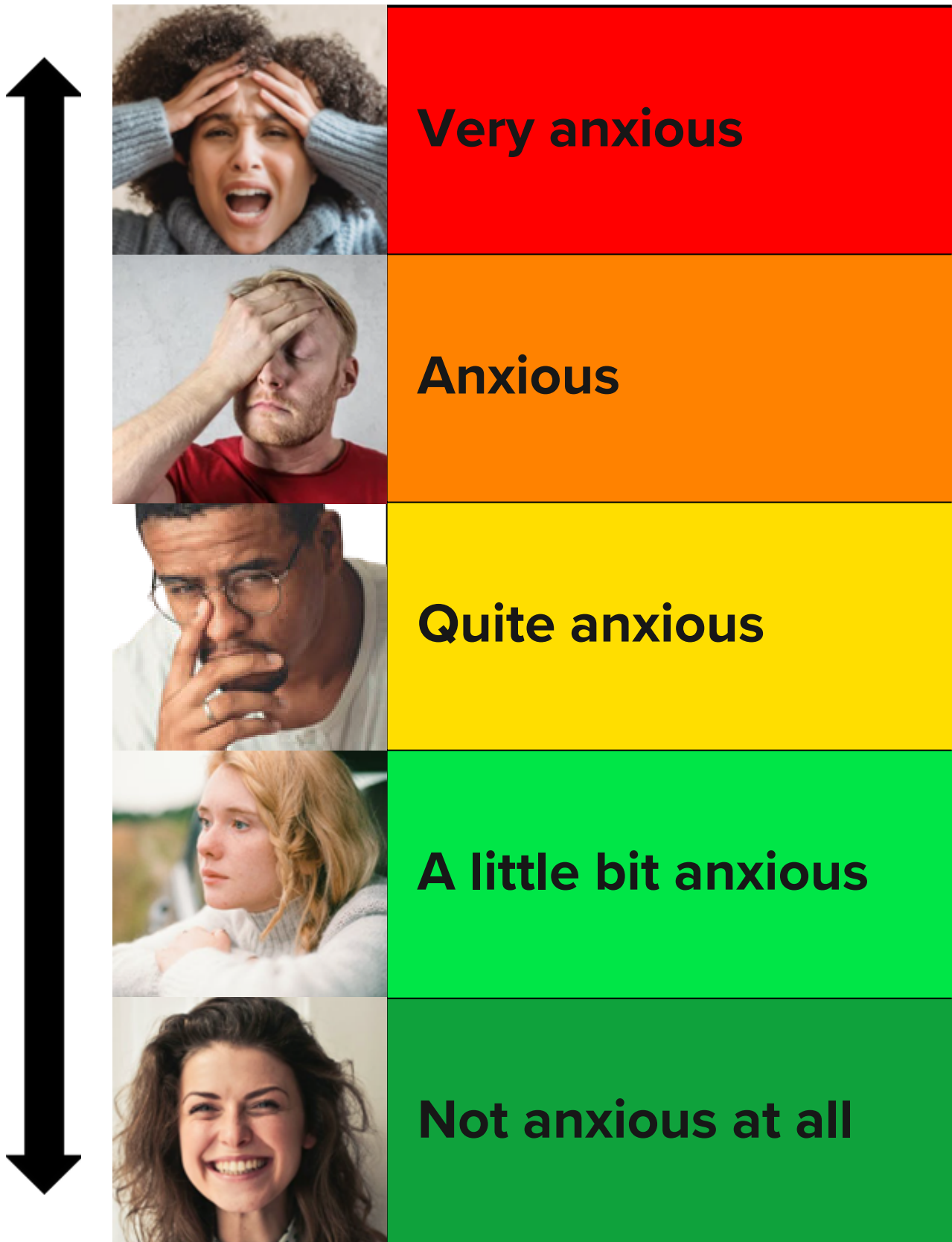


# Feelings, thoughts, actions sheet

<b>Feelings</b> 	<b>Thoughts</b> 	<b>Things people do</b> 
<b>Calm</b> 	<b>This is scary.</b> 	<b>Go to the shop</b> 
<b>Scared</b> 	<b>This is going to go wrong.</b> 	<b>Fly on a plane</b> 
<b>Happy</b> 	<b>I wonder what will happen.</b> 	<b>Stay at home</b> 
<b>Excited</b> 	<b>I can't wait to have pizza tonight!</b> 	<b>Play football</b> 

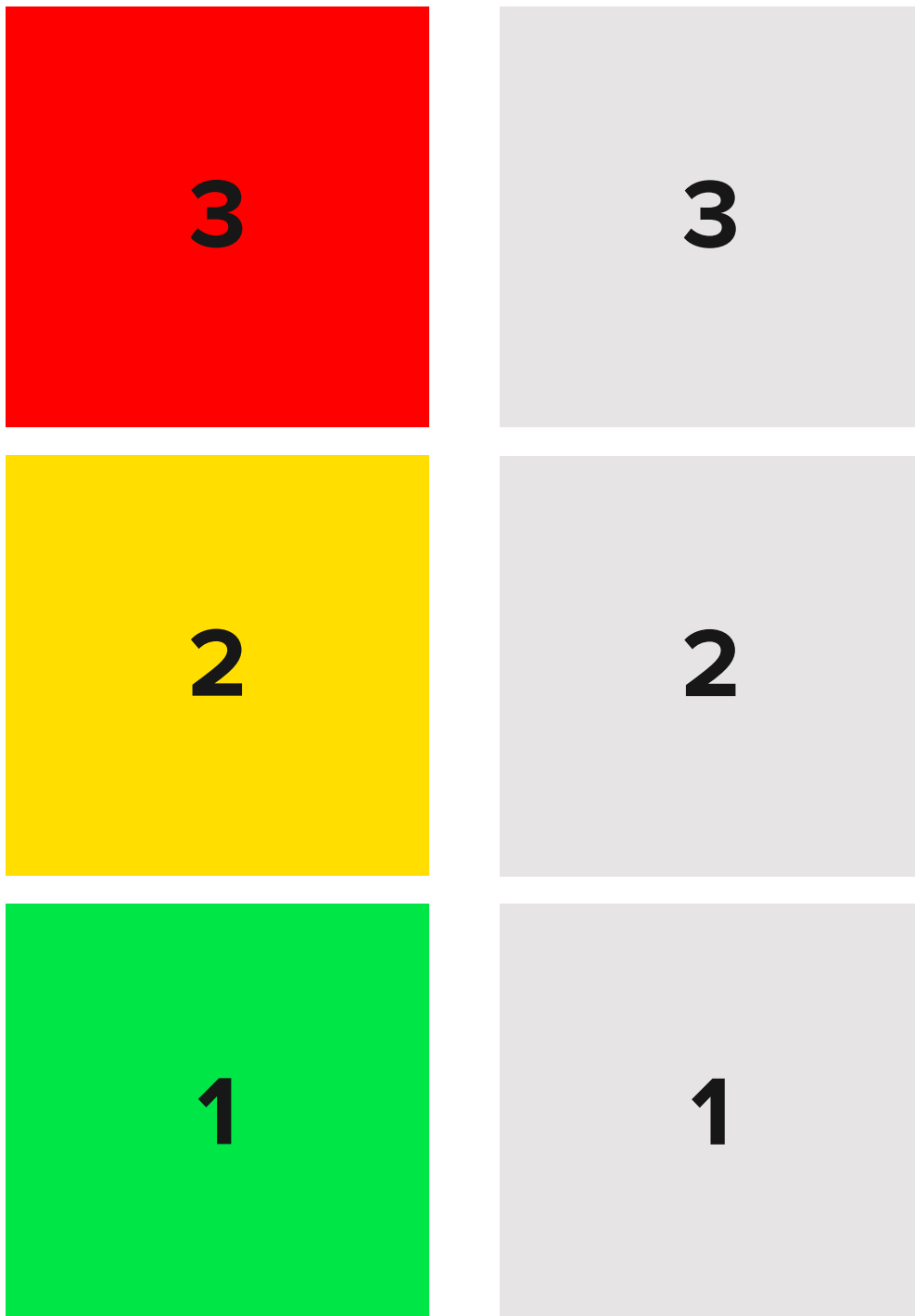


# Severity scale



## Three-point anxiety scale

Some people with learning disabilities may prefer to use a three-point scale. Colour may be helpful for some people of just numbers so both options are given:



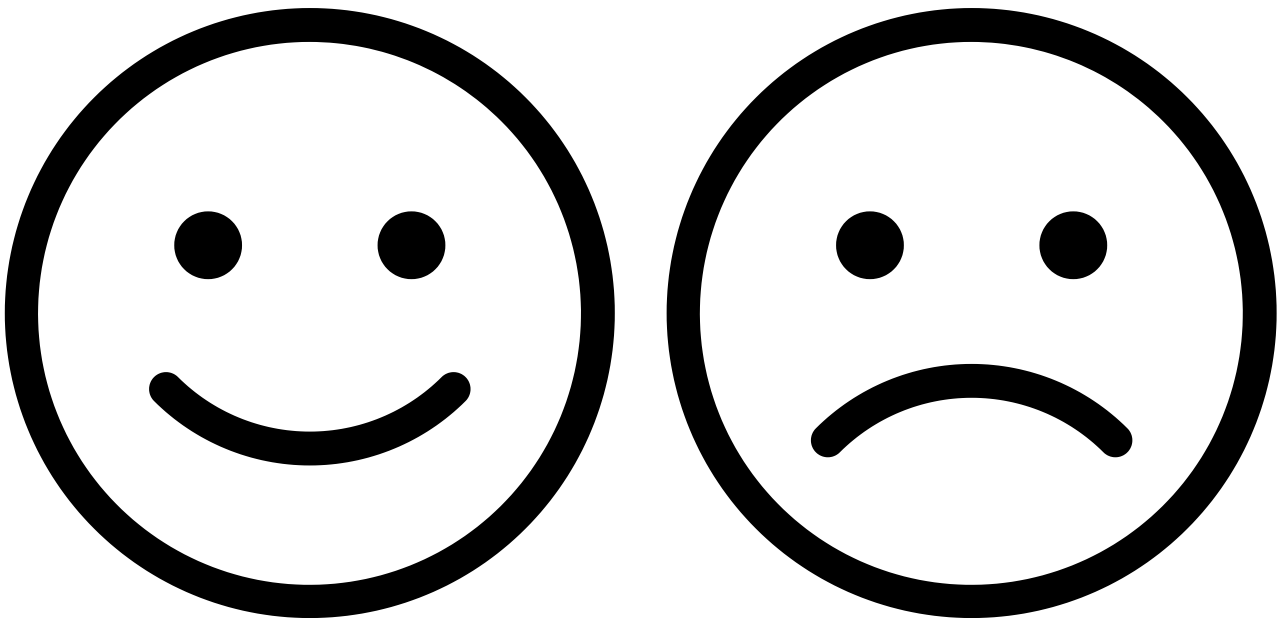
## Alternatives to a numerical scale

Some people may find a numerical scale difficult to work with and alternatives may be a tick/cross smiling face/sad face emojis, and red/green cards. Below are examples and it is important in the first session to establish which way of communication anxiety levels the participant prefers.



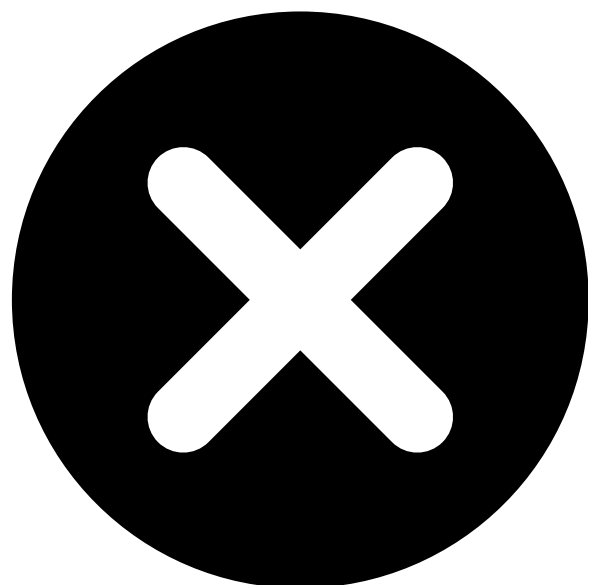
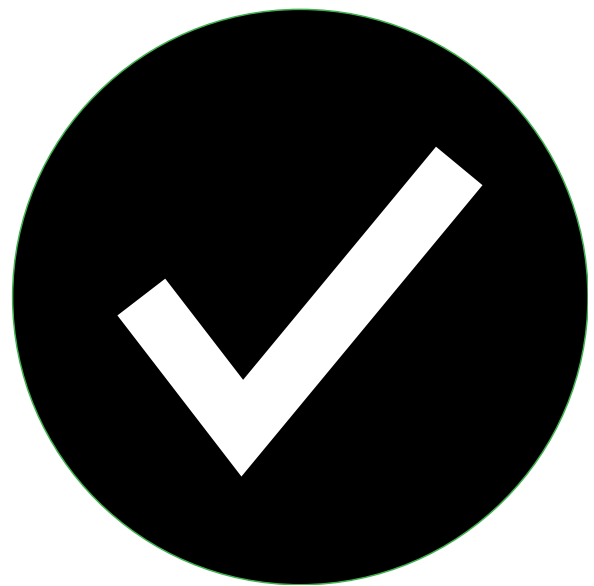
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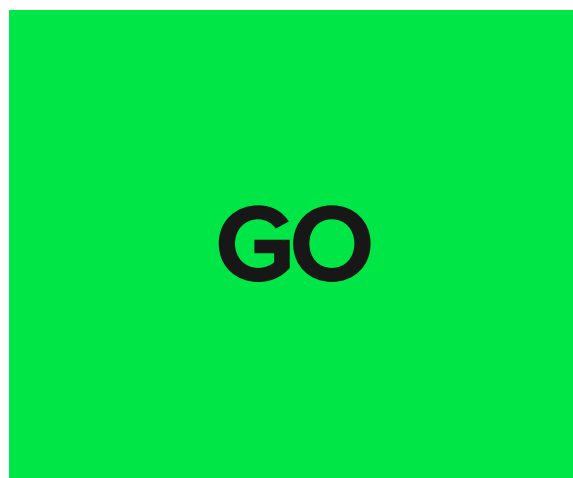
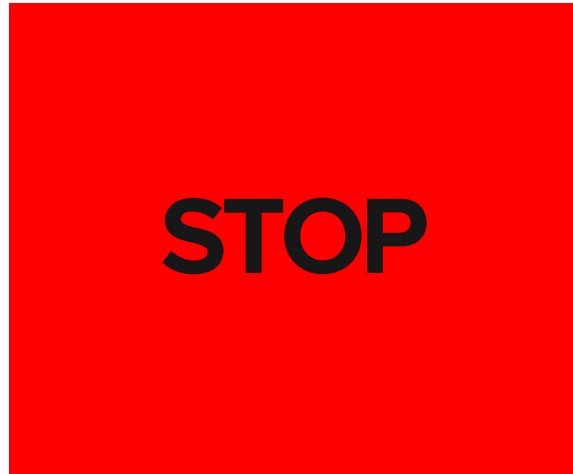


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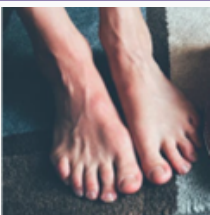



# Traffic light scale



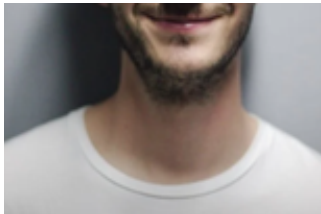

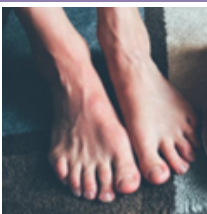
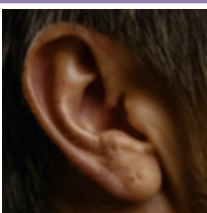



## Appendix 3 - Adapted Therapy Materials

# Muscle Relaxation (modified)

	<p><b>Sit in a comfy spot.</b> <b>Notice how your body feels in that spot.</b></p>
	<p><b>Close your eyes or soften your eyes so everything looks blurry.</b> <b>Breathe in through your nose and out through your mouth.</b> <b>Do this a few times.</b></p>
	<p><b>Squeeze your hands into fists.</b></p>
	<p><b>Now let go and let your muscles relax.</b> <b>Notice your hands get heavy.</b> <b>Your hands are warm, heavy and relaxed.</b></p>
	<p><b>Tighten your legs and curl your toes.</b></p>
	<p><b>Now let go.</b> <b>Notice your feet get heavy.</b> <b>Your feet are warm, heavy and relaxed.</b></p>
	<p><b>Pull your tummy in tight.</b></p>







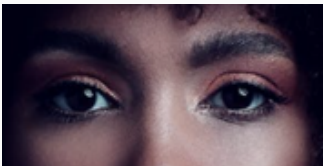


	<p><b>Now let go.</b> <b>Notice your tummy feeling heavy.</b> <b>Your tummy is warm, heavy and relaxed.</b></p>
	<p><b>Pull your shoulders up to your ears.</b></p>
	<p><b>Now let go.</b> <b>Notice your shoulders feel heavy.</b> <b>They are warm, heavy and relaxed.</b></p>
	<p><b>Let your whole body feel warm, heavy and relaxed.</b></p>
	<p><b>Notice your feet on the floor.</b></p>
	<p><b>Notice the sounds in the room.</b></p>
	<p><b>Slowly open up your eyes.</b></p>



## Appendix 3 - Adapted Therapy Materials

# Hot Drink Relaxation

	<p>Imagine you are holding your favourite hot drink. It might be coffee, tea or hot chocolate.</p>
	<p>Close your eyes.</p>
	<p>Imagine smelling the drink. Breathe in through your nose.</p>
	<p>Blow out through your mouth. Imagine you are blowing on your hot drink to cool it.</p>
	<p>Breathe in.</p>
	<p>Breathe out. Keep breathing in and out slowly.</p>
	<p>Open up your eyes.</p>

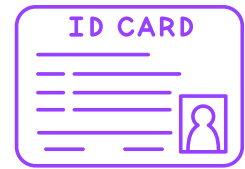


# **This is me**

**This booklet is all about you, we will use this to help people understand you better. It means we can make sure you are receiving the best care possible.**

**It can be filled in by yourself, with a doctor, a family member, a friend or a support worker.**

# About me



**Your name:** .....

**Where I live:** .....  
.....  
.....  
.....

**Who supports me:** This could be a family member, a friend, a key worker, or a carer.

.....  
.....  
.....

**Communication:** Do I communicate verbally, with sign language, pictures, pointing, or in another way? When I communicate do I need some more time to think and respond?

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# My health



**My medication:** Do I take medication? Does anyone help me take it?  
Is it a liquid or tablets?

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**My hearing and eyesight:** Can I hear and see okay?  
Do I need any hearing or visual aids?

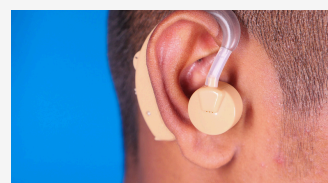
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**My mobility:** Am I fully mobile or do I need help  
from someone? Can I use the stairs?

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**Immersive Technology Therapist Training Manual**

**[www.xrtherapeutics.co.uk](http://www.xrtherapeutics.co.uk)**