

## Task Analysis

We do not give much thought to many of the day-to-day things that we do. Yet, much of what we do is really quite complicated for some pupils to learn. So we have to break the target behaviour down into smaller steps, that is, a series of discrete behaviours to be performed in a certain order. Breaking down a task in this way is called 'task analysis'. Careful task analysis and sensitive use of guidance and prompts helps the pupil to master the task step by small step. Consider the following task analysis of brushing one's own teeth, as a relatively simple example.

1. Take toothpaste tube off shelf
2. Pick up the tooth brush
3. Wet the brush
4. Take the cap off the tube
5. Put paste on the brush
6. Brush the outside of the bottom row of teeth
7. Brush the outside of the top row of teeth
8. Brush the biting surface of the top row of teeth
9. Brush the biting surface of the bottom row of teeth
10. Brush the inside surface of the bottom row of teeth
11. Brush the inside surface of the top row of teeth
12. Spit
13. Rinse the brush
14. Replace the brush in the holder
15. Grasp cup
16. Fill cup with water
17. Rinse teeth with water
18. Spit
19. Replace cup in holder
20. Wipe mouth on towel
21. Screw cap back on tube
22. Place tube back on shelf

While you may brush your teeth somewhat differently, this sequence gives you an idea of what is involved in task analysis. In practice, each of those steps could have been 'broken down' or sub-divided into even smaller steps. For example, the first step, "picking up the toothbrush" involves finding the toothbrush, reaching towards it, grasping it, turning the bristles upwards to load them with toothpaste, and so on. The mere act of brushing a row of teeth calls for quite complex motor coordination. Some steps have to be done before others; whereas the sequence of some steps may be a matter of choice.

How small you decide to make the steps in a task analysis will depend on your best guess as to how well the pupil will be able to remember, understand, and perform the sequential steps in the task. For instance, some individuals may be able to brush their teeth following just a few steps whereas others may need to learn twenty steps in order to become competent. Other factors have to be considered: for instance, the pupil may have grasped some of the steps already; the pupil may have good imitative skills; the pupil may learn from watching an adult model; and the pupil may be able to respond to a sequence of photos as a memory aid until the whole sequence is well-established.

How can you set about the task analysis? What processes help when devising the list of steps? You might do the task yourself noting the possible steps that lead to the final

product or you could brainstorm with colleagues and the pupil's parents who may already have experience of teaching the target behaviour before.

Task analysis demands a clear description of the target behaviour and equally clear descriptions of the steps leading to the target behaviour. The process of analysing a complex behaviour and determining its component parts takes practice and a lot of thought, but it is relatively easy to identify behaviour 'chains' involved in many tasks. The important thing is that once the order of steps and use of any special techniques has been agreed everyone needs to teach the same steps, in the same order and using the same methods.

Once you have determined the sequence of the discrete behaviours leading to a target behaviour, you have to teach the pupil to perform each and to perform them in sequence. It pays to think of the behaviours as links in a chain. Indeed, the process of teaching may be called 'chaining'. The act of chaining can be accomplished in three different ways. Firstly, you might teach the steps from the beginning of the chain, requiring the pupil to display a gradually increasing number of the simple behaviours from the front of the chain. Thus, as the pupil learns a new behaviour in the sequence it gets added onto the tail end of the behaviours already mastered. Teaching behaviours from the front end of the chain is called 'forward chaining'.

A second and often preferred approach is called 'backward chaining'. You might decide to perform all of the chain of behaviours except for the last one which you require the pupil to do. When this last behaviour has been mastered, you do all of the steps for the pupil except for the last two behaviours. When these behaviours have been mastered you do all of the steps for the pupil, except the final three, and so on. This approach could not easily be used with tooth brushing but it would work with puzzle completion, for example. So the puzzle is presented initially with just the last piece to be placed; next time around there may be the last two pieces to be inserted; and so on until the pupil is completing the whole puzzle independently. The advantage of backward chaining is that the task as a whole has a more obvious meaning for the child and may be intrinsically rewarding. If rewards have to be given to maintain motivation, they can be given quite naturally on completion of the task and the amount of time spent on the activity before getting the reward is gradually increased. Forward chaining does not have these advantages and it can be more difficult to motivate the pupil.

There is a third way. You might decide that the best way to establish the sequence of steps is by teaching pupil to perform all of the behaviours in the chain during every attempt. Of course, you will have to provide guidance and prompts and rewards as needed. For instance, the steps for completing a simple addition operation might be taught in this manner. You guide the pupil through the whole process, helping if needed. The pupil performs every step in the process from the very first attempt at it. The benefit of this chaining technique is that the pupil is an active participant in all parts of the activity

Task analysis is an important skill to acquire. With practice, task analysis can be used to analyse quite complex target behaviours including aspects of language, and cognitive behaviours. Some twenty or thirty years ago, it was fashionable to write textbooks on behaviour modification that provided task analyses for teaching a whole range of targets behaviours. Indeed, it is still possible to source such texts from the US and other countries where approaches such as applied behaviour analysis and behaviour modification are still very much in the ascendancy when it comes to teaching pupils with profound and severe learning difficulties.