Fixperts – introductory workshop 2: Simulations

Fixperts

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Fixperts introductory workshop 2: Simulations

Aims of workshop

- Reveal the importance of creative problem solving to quality of life
- Develop skills in observation, ideation, problem solving and iterative design
- Encourage empathy through experience

Objectives

- Observe and analyse students experience of performing a task with a restriction to their usual movement
- Develop solutions to a problem students experience personally

Materials
All locally available at low cost; see shopping list

Duration
Min. 30 minutes, average 1 hour, with extension activity 1 day

Location
Any classroom that allows contained messy work

Accompanying resources
Introduction to Fixing (ppt)
Simulations challenge: How to simulate restrictions
Simulations challenge: Describing the problems

Workshop outline

Introduction

Time: 10 minutes

Watch the **Introduction to Fixing** presentation together. With each slide direct questions to the class – What's the image? What's the fix? Lead into introducing Fixperts, explaining briefly what Fixperts is. Show one film.

Context
Understanding types of fixing e.g. repairing something broken, solving a problem, improving a product, customising something to work better for a specific use or changing users' behaviour.

Activity 1: Simulating restrictions

Time: 10 minutes

Learners work in pairs. Using the **How to simulate restrictions** guideline, one learner simulates restrictions, the other assists and observes.
The restricted learner attempts to perform any given task, for example buttoning a shirt or reading a newspaper, while their partner questions and takes notes. Get learners to discuss as they work: what is the difficulty? How could they it break down? What could make it easier, smoother or more efficient? How does it make them feel?

Activity 2: Fast prototyping ideas & solutions

Time: as available

Sketching Ideas
Ask learners to explore ideas and approaches to solving the difficulty they have experienced. Encourage pairs to use sketching to explain and develop their ideas.

Modelling prototypes
Using a range of simple modelling materials, ask learners to create quick prototypes of their ideas, testing them to evaluate their effectiveness, and modifying their designs as required.

Activity 3: Presentation

Time: as required according to number of students

Presenting
Learners are given 1 minute each to feed back to the class – what was the restriction, what was the task, where was the difficulty, how they solved it. Allow 5 minutes preparation time so pairs can plan their 'pitch'. Learners could also think of a name for their product. This activity can be adapted depending on size of group and time available, but is an important part of the process and should be included in some form.

Tutor prompts
If you had time and access to materials, what would you use to make your product? How could you make it more appealing to your user?

Plenary

Time: 15 minutes

Tidy up
Show a full Fixperts film of your choice, for example '[A pen for Donal]', and discuss how solutions are often simple and 'low tech' but still can make a huge difference.

Simulations: shopping list

Here are some suggested materials for simulating restricted movement and modelling students solutions. These can easily be substituted with preferred alternatives.

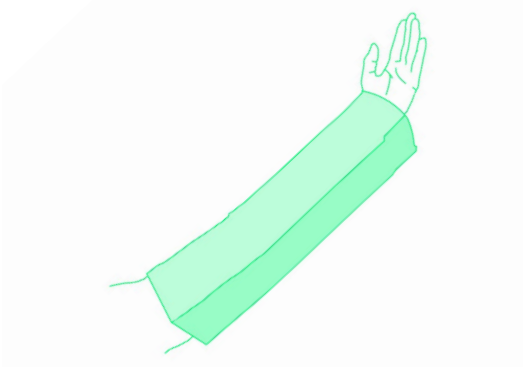
Possible materials for restricting students movements
Rubber washing up gloves OR heavy duty work gloves
Lolly sticks
Cardboard tubes, split to go over knees
Nylon knee socks with card inserts
Elasticated bandage strips
Knee bandages

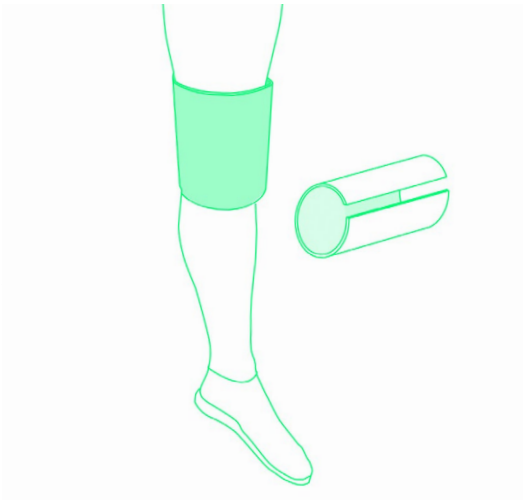
Possible materials for performing tasks
Button shirts
Washing up brushes
Newspapers
Long socks
Plasticine 'food'
Plastic cups, plates and cutlery (both to mimic eating and for modelling)

Possible materials for modelling
Plasticine
Modelling foam
Card - scrap boxes are good
Masking tape
Duct tape
Velcro (sticky back is good)
Pipe cleaners
Cable ties
String
Paper clips
Rubber bands
Scissors
Scalpels
Pliers
Bulldog clips
Wooden skewers and dowel of various thicknesses
Steel wire rods (easily bendable but with some rigidity)
Plastic cups, plates and cutlery (both to mimic eating and for modelling)

Materials for sketching
Paper (A4 / A3, sugar paper for team idea development)
Pencils, markers

How to simulate restrictions





Here are some suggested ways to simulate restrictions in movement. They can be created easily and taken on and off quickly.

Use cardboard tubes (round or rectangular) to simulate difficulty in bending arms or legs. To simulate difficulty in bending your knees, cut a large cardboard tube to size, then cut a slit across it vertically so you can fit it around your knee.

To understand how it might feel not to have use of your arm, wear an elastic knee support bandage over your folded arm. Remember not to use your hand and fingers even if the bandage does not fully cover them.

To simulate difficulty and pain bending your fingers, wear a washing-up glove and insert lolly sticks in to each finger, except the thumb. Tape your thumb down to the glove. You can also use a heavy work glove.

Your ideas

Simulation challenge: Describing the problems Use this worksheet to clearly define the problems so you can come up with the best solutions.

Before you start thinking of solutions, try describing as accurately as you can what the problems are. Try using this table to write a brief list:
What exactly are the difficulties?
What are the obstacles you encounter?
What is preventing you from carrying out the task?

Task and restriction	What is difficult?
Opening a drink can with a heavy glove	- Gripping the ring-pull - Keeping hold of the ring-pull without it slipping - Keeping the drink from spilling while pulling the ring