

Case study 6.1:

Participatory Design: Describing an undergraduate interactive inclusive design project.

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This case study describes an interaction between Ashfield School, a school for students with special educational needs in Leicester, and undergraduate students of industrial design and technology from Loughborough University¹.

The activity was part of a specific undergraduate module titled 'Universal Design'².

The school was approached by the module leader to participate in an interactive design activity as part of the undergraduates learning experience.

The school took part on a voluntary basis; however the main benefit for staff was to know more about their students' sport and physical activity preferences as well as having concept designs produced specifically to meet their students' needs and aspirations.

Preparation for the activity by the undergraduate students included empathic modelling and a series of interactive sessions with experts in the field of inclusive physical activity and disability sport. The methods to be applied during the series of meetings were peer piloted in order to practise and refine their skills. This culminated in a discussion with the physical education teacher from Ashfield, who described the specific activities undertaken by the school students and their specific characteristics.

An ethical approach was adopted throughout. For example, student/parent/carer permission was secured. Interview technique emphasised, for example:

- child protection policy;
- non-threatening body language and voice;

¹ This undergraduate project should be viewed in the context of the adapted game design example 'project adapted' shown in Chapter 7.

² See "The principles of Universal Design" at http://www.design.ncsu.edu/cud/about_ud/udprinciples.htm

- maintenance of positive eye-contact;
- direct communication with students, even when supported by an advocate.

The activity was based at the school and involved 30 undergraduate students.

The intervention consisted of three stages covering a period of 6 weeks:

1. initial meeting; interview and observation;
2. co-designing; and,
3. presentation and feedback.

1. Initial meeting; interview and observation

Undergraduates met with the special needs students and employed semi-structured interviews and observation of their participation in sport and physical activity. (See Figure CS6.1) Teaching and support staff were also interviewed at this stage. The undergraduate students supported each other through note-taking and thumbnail sketching of notable elements of the school students sporting activity. Students used their notes and sketches to identify specific needs followed matching early concept solutions.



Figure CS6.1 Loughborough University Design and Technology undergraduates meet special needs students involved in the participatory design project. (Source: Photo by George Torrens).

2. Co-designing

The undergraduates presented their early concept designs to the same students that they had interviewed two weeks earlier. (See Figure CS6.2) The school students, teaching and support staff provided comment. The undergraduates provided an immediate response by incorporating the comments into the form of new sketch designs which explored alternative solutions and modifications. The outcomes of the co-designing were used as a basis for the refinement of a definitive design solution produced by each undergraduate student in response to their interviewee's needs.

3. Presentation and feedback

Two weeks after the co-designing activity the undergraduates presented their final definitive designs to the school students, teaching and support staff in the form of poster displays. (See Figure CS6.3) Each undergraduate interviewed the students and staff with whom they had worked over the previous six weeks to assess how effectively they had answered the given needs and aspirations.



Figure CS6.2 Special needs students and Loughborough Undergraduates discuss design solutions. (Source: Photo by George Torrens)

Outcomes

The outcomes of this exercise were 30 design solutions, some of which were worthy of further discussion between the school and the university with a view to securing funding for the development of a prototype. Staff also gained insight into the aspirations of their students and were able to integrate some of the design concepts into current activities by modifying existing equipment.

Roll-a-cube

User

1. Cerebral palsy, cognitive difficulties, partially sighted
2. Cognitive difficulties, paraplegic

Context

Ash Field School hall



Instructions

1. Roll the die and count the spots.
2. Roll the action cube and listen to the audio command
3. The number on the die refers to the number of times the action is to be performed.

Use two cubes and place simple pictures into the sleeves to alter the game.
The individual who rolls matching images wins.



Target practice

Technology



Pressure sensitive musical soft cube



Sensory cube with recordable speaker



Flashing dice



Soft touch cube

Storage



Mat folds away for easy storage

Lauren Whitby

Figure CS6.3 Final adapted game design based on input from special needs students and their staff. (Source: Design by Lauren Whitby).