



# Mobile Assistance - The Nintendo DS Lite as an assistive tool for health and social care students

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## Course details

### Course title

During the two project phases, the following courses were represented:

- Advanced Diploma Nursing (Mental Health and Adult Pathway)
- BSc (Hons) Nursing (Adult and Mental Health Pathway)
- Diploma HE Nursing (Adult Pathway)
- Doctor of Professional Practice
- BSc Social Work
- BSc Occupational Therapy

**Level** Undergraduate and postgraduate

**Year** Various

**Discipline/Subject areas** See above

## Activity details

### What I did

A two phased TechDis Higher Education Assistive Technology (HEAT) project investigating the use of the Nintendo DS Lite mobile gaming device alongside three DS software packages as assistive technology tools for health and social care students. The software packages were:

1. Brain Training which challenges players to spend 10 to 15 minutes each session performing arithmetic, word memory and concentration tasks using the touch screen to write, draw or select options.
2. Big Brain Academy which tests players in five areas: thinking, memorization, computation, analysis and identification.
3. The Nintendo DS version of the Opera Browser - based on the same core as the Opera desktop browser - which delivers high speed web page rendering via an Internet hotspot or wireless router.

## Why I did it

- There is currently little research available examining the use of mobile gaming devices within Higher Education (HE) as most interest tends to focus on secondary and primary school education.
- Medical personnel need to have the ability to quickly calculate measures on drugs rounds and in other areas of their role.
- Students entering health and social care with poor numeracy skill levels have previously been flagged as a concern (Gillham and Chu, 1995).

## What I wanted to achieve

To present findings concerning the use of a mobile gaming device within a Higher Education (HE) environment, and to raise awareness of some of the educational possibilities for students and staff.

## A short description of what I did

### Phase 1 (09/06 – 12/06)

- Four Nintendo DS Lites and four copies of Brain Training were acquired.
- After an induction session lasting one hour, twelve participants were able to choose to complete as many sessions as they liked for the duration of the project. Due to scheduling difficulties, each session was conducted at a central campus based location and comprised participants using a copy of Brain Training with the DS Lite for as long as they wished.
- Each session could consist of as many or as few of the different training types available:
  - Calculations x20 involves high speed sum solving. Sums appear and the user writes the answer on screen as quickly as possible with incorrect answers incurring a time penalty.
  - Calculations x100 as per Calculations x20 with 80 additional sums.
  - Reading Aloud asks the user to either read aloud text passages or silently to themselves. The time for reading the whole text is recorded.
  - Low To High involves numbers appearing in boxes for an instant. The same empty boxes then appear and need to be selected in order of the lowest to the highest number.
  - Syllable Count asks the user to count the number of syllables featured in a sentence.
  - In Head Count people enter and leave a house. The user keeps track of how many remain with the final number written on screen.

### Phase 2 (10/07 – 03/08)

Three students were given a DS Lite and copies of Opera Browser, Brain Training and in two cases Big Brain Academy for a sustained time period allowing for more flexibility in assessing how the DS could function as an educational tool.

## What worked well

- Usability - easy to use with clear instructions and colourful.
- Measurement - challenge of trying to improve on previous scores and ability to discuss results with others positively received.
- Enjoyable - amusing and entertaining to use with smiles and laughter occasionally manifesting themselves during sessions.
- Flexible – the ability to take as little or as much time as could be fitted in to one session appealed.
- Encouraging - occasional motivations from the cartoon host which appeared on screen were appreciated.

## Problems and/or issues

- The effectiveness of the voice recognition used in tests varied depending upon the individual (Brain Training).
- The effectiveness of the handwriting recognition varied according to styles of writing (Brain Training).
- A large percentage of the students were involved in long periods of placement during the project which caused scheduling difficulties (Nintendo DS Numbers).
- Opera browser was not felt to be as intuitive or easy to use as a traditional computer browser

## What students thought about it

- *"It has helped me to gain confidence in my numeracy"*
- *"I feel as though answers to equations are far easier to recall, almost like beginning back at school when a teacher would test you verbally and you were expected to know the answer immediately"*
- *"I found that at first there was noticeable improvement with the results in the calculation activities on brain training, and I felt that this improvement was evident with the calculations I do in my day to day activities"*

## Key messages

- It can be recommended that utilising a similar methodology, Brain Training (and to a lesser extent Big Brain Academy) offer innovative approaches in helping to address numeracy skills with health and social care students.
- Easy to transfer into any subject area where students use and need to improve numeracy skills.
- The Opera Browser is less successful as a wireless internet resource

## Related documents or links

Gillham D. M. and Chu S. (1995). An analysis of student nurses' medication calculation errors. *Contemporary Nurse*. 4(2), 61-62.

Pulman, A., 2008, The Nintendo DS as an assistive technology tool for health and social care students. MLearn 2008 Conference Proceedings

Pulman, A., 2008, TechDis Heat 2 Scheme Report  
[http://www.techdis.ac.uk/index.php?p=2\\_1\\_7\\_25\\_16](http://www.techdis.ac.uk/index.php?p=2_1_7_25_16)

Pulman, A., 2007, Colloquium: Can a handheld gaming device be used as an effective assistive technology tool?, *British Journal of Educational Technology*, 38 (3), 532-534

Pulman, A., 2007, TechDis Heat 1 Scheme Report [http://www.techdis.ac.uk/index.php?p=2\\_1\\_7\\_9](http://www.techdis.ac.uk/index.php?p=2_1_7_9)

## Any other comments

Other Possibilities For Study:

- Students with Dyspraxia might benefit more from using some of the forms of training (Big Brain Academy) over others (Brain Training) which could also reward further study.
- Looking at how mobile technology could be used within a health education environment for patients (Brain Training and My Health Coach)

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