Using iPads to improve learning outcomes for students with disabilities, complex needs and autism

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Abstract:
This paper presents the findings of a partnership project between Manchester Metropolitan University and Bridge College, a specialist Further Education College for students aged 16-25 with complex and multiple learning needs.

Technology has a key part to play in both supporting learning and teaching and encouraging social inclusion; and the reality is that mobile devices are now a significant part of everyday life. Students with communication impairments use iPads widely to support learning across the curriculum but their use can sometimes be limited by the experience of staff and carers. The purpose of this collaborative partnership project was to work with students with communication impairments to gain an insight into their needs and subsequently to develop resources for staff and carers working with this group. The underpinning philosophy was to create an inclusive learning environment where young people could develop their skills, and communication.

This paper outlines the successes and challenges raised by the project, as well as future developments and potential wider implications for iPad usage for this particular group.
Introduction

This paper describes a social innovation project that developed out of a collaborative partnership between Manchester Metropolitan University (MMU) and Bridge College, Manchester - a specialist Further Education College for students with complex and multiple learning needs. The purpose of this project was to use practice-driven and solution-focused action research to make lasting change and provide a basis for good practice; developing a range of strategies and new innovations that addressed students’ needs in more efficient ways. Specifically, the aim of this partnership was to evaluate students’ usage of iPads and subsequently, design bespoke iPad based training packages for students, their carers and health and education professionals.

Students with complex and multiple learning needs frequently require Augmentative or Alternative Communication (ACC) strategies to facilitate their learning and development; which can include the provision of devices to enhance communication. These specialist communication devices are often described as ‘expensive, cumbersome, and time-consuming to program and personalize.’ (Shane, 2011 p1229) and can offer limited scope for the user to adapt settings and preferences so the device can perform a wider range of functions. As such users may feel stigmatised by the technology they rely upon and one of the key challenges for staff working with this group of students is thus the provision of devices that are acceptable to users whilst stimulating learning and enhancing communication skills.

Background

Tablet technologies and particularly iPads have become a ubiquitous form of communication technology and have begun to permeate the way individuals learn, work and live (McNaughton & Light, 2013). As such, iPads are considered to be a ‘game changer’ (McLeod, 2011) for this particular client group as they serve multiple purposes and can be easily programmed to meet the support needs and preferences of the individual users. When iPads were first launched in 2010, it was initially unclear as to the value of the device for promoting learning and teaching (Berger, 2010) and whether they could support this client group. However research suggested that tablet technology had both educational and social uses and the iPad had a wide variety of applications that have the potential to enrich the learning experience (Mang and
In addition, the universal design features of an iPad have the potential to change what would traditional be a standalone device into one that performs several functions (Wood et al., 2013).

Health and teaching professionals consider iPads to be an important mode of technology that facilitates learning, communication and independence (Shane et al., 2011). Recent small-scale studies have indicated that teaching individuals with complex needs how to use an iPad to meet a wide range of learning outcomes can lead to the same positive outcomes as those produced when using specialized assistive technologies such as speech-generating devices (SGD) (Kagohara et al., 2013). However, what differentiates the iPad from traditional specialised assistive technologies is their affordability, their ‘cool factor’ and their universal design features meaning that one device can be used for multiple purposes.

The collaborative partners within this project included health professionals and learning technology specialists from MMU and teachers, students, parents and carers from Bridge College. Following a review of current practice, the project team identified that although mobile learning was a growing market and iPads are widely used by students with learning disabilities, students’ learning could sometimes be limited when staff and carers were unable to support students’ iPad usage through lack of training.

**Approach**

The project began with initial funding from an MMU Knowledge Exchange project that provided a small supply of iPads and supporting devices. Following this provision, we developed a small-scale pilot study, to evaluate how students with communication impairments used iPads to support their learning and development. With the goal of using this evaluation and a combination of interdisciplinary expertise to develop iPad based resources and training to support both staff and students.

Central to the whole project was the perspective of the students, and we developed a dynamic, two-way process involving both the students and staff in a review of practice and evaluation of the technology. As such, the project drew on a phased, practical action research framework (see Savin-Baden, 2012) to:
1. Identify the specific issues and challenges that affect the use of iPads amongst this particular client group.

2. Design practical suitable solutions that can stimulate learning and enhance communication skills.

We needed to explore the perspectives of both staff and students and ultimately devise solutions that would both enhance communication and promote students’ learning. In order to capture this information a two-phase evaluation was undertaken with each distinct phase of the project was conducted through a cyclical process of thinking, acting, data gathering and reflection’ (Saven-Baden, 2012, p245).

In the first phase, we gathered information from parents, carers, support staff and tutors at Bridge College by inviting them to complete an online survey that included a mix of closed and open items. In the second phase, we wanted to gain further insight into the students’ perspectives as iPad users, and a small group of students with complex and multiple needs were invited to participate in an iPad user’s group to test a selection of apps and give feedback on their experiences.

**Staff perspectives**

Fifty-nine respondents completed the online survey. This comprised of twenty-eight (47.5%) members of the teaching team and thirty-one (52.5%) members of the support staff, including one member of staff who was also a parent.

The data from the survey indicated that whilst teaching and support staff were interested in developing the use of iPads and apps with particular students and had a real belief in the potential of the device. Participants, however, expressed concerns about their own technical skills when using the devices and the overall quality of some the apps available to meet specific communication and learning needs.

The responses indicated that in general staff lacked confidence in their abilities to support young people in using the device and therefore believed that they could not explore the full potential of the device to support individual learning and communication needs. Specifically:

- 68.8% of the participants found it difficult to find time to learn how to use an
iPad.

- 87.8% stated they wanted to build their confidence when using the iPad.
- 87.5% stated they wanted to try out new things on an iPad.

Sample written comments included:

‘I have no idea how to use one but with training I think I would be fine.’

‘I feel that I would need further training as I feel that it could do so much more.’
‘Unaware which applications are available or how to use them.’

‘Not enough knowledge and not understanding how the iPad can be best used.’

However, the majority of staff also believed that the iPad was a device that had the potential to support learning and communication. They also identified a number of benefits of using iPads to support learning and communication. In summary:

- 87.5% wanted to try out new things on an iPad
- 54.3% liked offering support to others (staff and students)

Sample written comments included:

‘The iPad gives students ways of communicating a need where they wouldn’t have been able to do so before.’

‘It gives a student a "voice" and opens doors to communication, choice making autonomy and independence’

‘Mobile, light weight, discreet and can be adapted to the individuals need.’

‘They are current, in line with what is happening in the outside world and parents and carers can also buy iPads to use enabling transfer of knowledge and skills.’

**Students’ perspectives**

The student iPad user groups consisted of fourteen students with a range of abilities
and communication needs - six male participants with Autistic Spectrum Disorders, four male participants with profound and complex learning needs and four female participants with profound and complex learning needs. The students were each provided with iPads and given a range of apps to use and asked to rate each app using symbols for: ‘Fantastic’, ‘Not sure’ or ‘Terrible’.

The students initially required some support during the start of the session to set up the device and to become familiar with the apps. However, they all found the devices acceptable to use and once the features of the individual apps had been demonstrated they were able to work independently. Each of the students indicated that they enjoyed using the device for a range of different purposes and the responses indicated that they particularly liked apps that allowed them to create images; record achievements using photos; sequence activities and use cause and effect apps to plan tasks. All of the apps were rated as ‘fantastic’ by the students using the symbols, sample comments from the students that were able to vocalise their perceptions included:

‘I think it was special being able to use the iPads.’

‘Wow, I think this is fabulous and fantastic!’

‘I think the iPads are really good I liked the fish app it reminded me of the pond outside college.’

‘I like it, I think the drawing is good.’

Discussion

This small-scale pilot project provides an insight into the perceptions and experiences of students with complex and multiple learning needs and the staff and carers that support them, on the use of iPads to support learning and communication. We utilised a two phase approach and have attempted to synthesis data which represents the perspectives of all who participated. However, we acknowledge that as some of the
students who participated in the user group were unable to vocalise their opinions we have extrapolated their point of view based on their use of a limited range of symbols.

Specifically, the aim of the project was to evaluate students’ usage of iPads and the first phase of the project identified the specific benefits and challenges that the staff believed were associated with using iPads to support learning and communication with this particular student group. Some staff were overwhelmingly positive about the potential of the iPads to support both student learning and communication. However a number also expressed concerns and an analysis of the staff comments identified that further training and support were required for staff to feel confident in supporting student usage of the devices.

A significant concern from across the staff feedback was that they were unsure how they could identify the most appropriate app for supporting particular learning needs and communication difficulties. This was especially true when staff identified themselves has having limited experience of using technology to support learning. This is in line with the findings of Wood et al (2013), which reported that whilst iPad users with complex and multiple learning needs were often ready to ‘work it out for themselves’ (Wood et al,p.25.16) their efforts were sometimes limited by external factors. In particular the study noted that this was due to support staff and those within their immediate communication circles lacking the skills and confidence to support them when learning how to use a new app or set up the device.

The second phase of the study gave an insight into how students with complex and multiple learning needs engaged with the iPads and assessed a small range of apps. The student comments give some indication of the their view of using the iPads to facilitate their learning and development; and a user perspective on how iPads could be used to better meet these students’ needs. There are a limited number of studies (for example Wood et al,2013 and Niemeijer,2012) that have explored the perspective of this group of learners and providing devices that are acceptable to users whilst stimulating learning and enhancing communication skills remains an issue across the sector. However, this study demonstrates that a starting point could certainly be increasing staff confidence and awareness of iPad apps as advocated by the staff themselves.
The purpose of this project was to use practice-driven and solution-focused action research to develop a range of innovations that addressed students’ needs in more efficient ways. Following the analysis of the data from both phases we have developed an interactive staff development programme on iPads for both teaching and support staff. In line with the findings of Niemeijer (2012) this programme includes bespoke iPad based training packages for students, carers and health and education professionals and provides participants with hands-on experience of using iPads and a selection of apps for:

- developing creativity
- recording achievements and building portfolios
- assisted sequencing activities and communication
- facilitated students to understand ‘cause and effect’

Conclusions
This paper, based on the staff and students’ comments gives an insight into the potential for using iPads to improve learning outcomes for students with disabilities, complex needs and autism. The study illustrates how using an action research approach we have developed a social innovation that efficiently utilizes the skills and expertise of various stakeholders; to create a product that can have a positive impact on the lives of individuals with profound and complex needs.

Future developments will include an ongoing evaluation of iPad usage with this particular group of staff and students and an evaluation of the potential wider implications for iPad usage for this particular group. We recommend that clear guidance regarding the use of iPads and apps is developed and that this is regularly reviewed and updated. In addition it is vital that staff and carers using the devices with students are allocated sufficient time to develop their skills and increase their confidence.
References:


